

# IN THE FORESTS OF BRAZIL



H. W. BATES



1. Loke.









SOME BIRDS OF THE AMAZON


Blue-necked Tanager  
Purple Troupial

Grass Parakeet  
Red-billed Toucan

*The* ROMANCE  
OF TRAVEL

IN THE  
FORESTS OF  
BRAZIL

~ BY ~  
H. W. BATES



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*THE*  
*ROMANCE OF TRAVEL*

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## PREFACE

THIS series is intended to fulfil a want long felt in schools. Teachers and others, interested in the study of geography, have often insisted on the importance of boys and girls reading genuine accounts of great voyages and discoveries as told by the travellers themselves; such books, from the point of view both of geography and of literature, are much more valuable than second-hand accounts of lands and peoples such as make up the usual "Geography Reader." The records of famous travellers are among the most interesting books in our language, and the careful reading of such books affords valuable lessons in geography, especially on its more "human" side.

These books have been carefully edited, but not condensed; occasional names and passages, and technical descriptions and details—which are not necessary to the enjoyment and continuity of the story—have been omitted, and maps and pictures and occasional explanations of terms have been added, so as to make the books thoroughly suitable for children of school age.

This series will, it is believed, prove that real tales of travel are (to say the least) quite as easy to read as ordinary books on geography.

## NOTE

THIS volume contains four chapters from *The Naturalist on the Amazons*, a record of adventure, habits of animals, sketches of Indian and Brazilian life, and aspects of Nature under the Equator, during eleven years of travel (1863). The author, Mr. H. W. Bates, left England in April 1848, to investigate the Natural History of the greatest river basin in the world, and remained there for eleven years.

In his preface to his book, the author says : “ The personal narrative has been left entire, together with those descriptive details likely to interest all classes, young and old, relating to the great river itself, and the wonderful country through which it flows,—the luxuriant primæval forests that clothe almost every part of it, the climate, productions, and inhabitants.”

Any boy or girl who begins to read these fascinating pages of travel and adventure will not leave off till the whole book is finished; and will never forget the wonders of that “ vast wooded region traversed by that mighty river and its numerous tributaries.”

For Map, see page 29.



PARÁ

## CHAPTER I

### PARÁ

#### AT THE MOUTH OF THE AMAZON

Arrival—Aspect of the Country—The Pará River—First Walk in the Suburbs of Pará—Birds, Lizards, and Insects of the Suburbs—Leaf-carrying Ant.

### I

I EMBARKED at Liverpool, with Mr. Wallace, in a small trading vessel, on the 26th of April, 1848; and, after a swift passage from the Irish Channel to the equator, arrived, on the 26th of May, off Salinas. This is the pilot-station for vessels bound to PARÁ, the only port of entry to the vast region watered by the Amazons. It is a small village, situated a few miles to the eastward of the Pará river. Here the ship anchored in the open sea, at a distance of six miles from the shore, the shallow-

ness of the water far out around the mouth of the great river not permitting in safety a nearer approach; and the signal was hoisted for a pilot.

It was with deep interest that my companion and myself, both now about to see and examine the beauties of a tropical country for the first time, gazed on the land where I, at least, eventually spent eleven of the best years of my life. To the eastward the country was not remarkable in appearance, being slightly undulating, with bare sand-hills and scattered trees; but to the westward, stretching towards the mouth of the river, we could see through the captain's glass a long line of forest, rising apparently out of the water; a densely-packed mass of tall trees, broken into groups, and finally into single trees, as it dwindled away in the distance. This was the frontier, in this direction, of the *great primæval forest*, which contains so many wonders in its recesses, and clothes the whole surface of the country for two thousand miles from this point to the foot of the Andes.

On the following day and night we sailed, with a light wind, partly aided by the tide, up the Pará river. Towards evening we passed two fishing villages, and saw many native canoes, which seemed like toys beneath the lofty walls of dark forest. The air was excessively close, the sky overcast, and sheet lightning played almost incessantly around the horizon, an appropriate greeting on the threshold of a country lying close under the equator! The evening was calm, this being the season when the winds are not strong, so we

glided along in a noiseless manner, which contrasted pleasantly with the unceasing turmoil to which we had been lately accustomed on the Atlantic.

The immensity of the river struck us greatly, for although sailing sometimes at a distance of eight or nine miles from the eastern bank, the opposite shore was at no time visible. Indeed, the Pará river is thirty-six miles in breadth at its mouth; and at the city of Pará, nearly seventy miles from the sea, it is twenty miles wide; but at that point a series of islands commences which contracts the river view in front of the port.

On the morning of the 28th of May we arrived at our destination. The appearance of the city at sunrise was pleasing in the highest degree. It is built on a low tract of land; the white buildings roofed with red tiles, the numerous towers of churches and convents, the crowns of palm trees reared above the buildings, all sharply defined against the clear blue sky, give an appearance of lightness and cheerfulness which is most exhilarating. The perpetual forest hems the city in on all sides landwards; and towards the suburbs, picturesque country houses are seen scattered about, half buried in luxuriant foliage. The port was full of native canoes and other vessels, large and small; and the ringing of bells and firing of rockets, announcing the dawn of some Roman Catholic festival day, showed that the population was astir at that early hour.

We went ashore in due time, and were kindly received by Mr. Miller, the consignee of the vessel,



who invited us to make his house our home until we could obtain a suitable residence. On landing, the hot moist mouldy air, which seemed to strike from the ground and walls, reminded me of the atmosphere of tropical stoves at Kew. In the course of the afternoon a heavy shower fell, and in the evening, the atmosphere having been cooled by the rain, we walked about a mile out of town to the residence of an American gentleman to whom our host wished to introduce us.

The impressions received during this first walk can never wholly fade from my mind. After traversing the few streets of tall, gloomy, convent-looking buildings near the port, inhabited chiefly by merchants and shopkeepers; along which idle soldiers, dressed in shabby uniforms, carrying their muskets carelessly over their arms, priests, negresses with red water-jars on their heads, sad-looking Indian women carrying their naked children astride on their hips, and other samples of the motley life of the place, were seen; we passed down a long narrow street leading to the suburbs. Beyond this, our road lay across a grassy common into a picturesque lane leading to the virgin forest. The long street was inhabited by the poorer class of the population. The houses were of one story only, and had an irregular and mean appearance. The windows were without glass, having, instead, projecting lattice casements. The street was unpaved, and inches deep in loose sand.

Groups of people were cooling themselves outside their doors : people of all shades in colour of skin,

European, Negro and Indian, but chiefly an uncertain mixture of the three. Amongst them were several handsome women, dressed in a slovenly manner, barefoot or shod in loose slippers; but wearing richly-decorated ear-rings, and around their necks strings of very large gold beads. They had dark expressive eyes, and remarkably rich heads of hair. The houses were mostly in a dilapidated condition, and signs of indolence and neglect were everywhere visible. The wooden palings which surrounded the weed-grown gardens were strewn about, broken; and hogs, goats, and ill-fed poultry wandered in and out through the gaps.

But amidst all rose the overpowering beauty of the vegetation. The massive dark crowns of shady mangos were seen everywhere amongst the dwellings, amidst fragrant blossoming orange, lemon, and many other tropical fruit trees; some in flower, others in fruit, at varying stages of ripeness. Here and there, shooting above the more dome-like and sombre trees, were the smooth columnar stems of palms, bearing aloft their magnificent crowns of finely-cut fronds. Amongst the latter the slim assai-palm was especially noticeable, growing in groups of four or five; its smooth, gently-curving stem, twenty to thirty feet high, terminating in a head of feathery foliage, inexpressibly light and elegant in outline. On the boughs of the taller and more ordinary-looking trees sat tufts of curiously-leaved parasites. Slender woody lianas<sup>1</sup> hung

<sup>1</sup> *Lianas*: twining and climbing plants of the tropical forests. (N.B.—This word occurs several times.)

in festoons from the branches, or were suspended in the form of cords and ribbons; whilst luxuriant creeping plants overran alike tree-trunks, roofs and walls, or toppled over palings in copious profusion of foliage.

The superb banana, of which I had always read as forming one of the charms of tropical vegetation, here grew with great luxuriance; its glossy velvety-green leaves, twelve feet in length, curving over the roofs of verandahs in the rear of every house. The shape of the leaves, the varying shades of green which they present when lightly moved by the wind, and especially the contrast they afford in colour and form to the more sombre hues and more rounded outline of the other trees, are quite sufficient to account for the charm of this glorious tree.

Strange forms of vegetation drew our attention at almost every step. Amongst them were the different kinds of pine-apple plants, with their long, rigid, sword-shaped leaves, in some species jagged or toothed along their edges. Then there was the bread-fruit tree—an importation, it is true; but remarkable from its large, glossy, dark green and strongly digitated foliage. Many other trees and plants, curious in leaf, stem, or manner of growth, grew on the borders of the thickets along which lay our road; they were all attractive to new-comers, whose last country ramble of quite recent date was over the bleak moors of Derbyshire on a sleety morning in April.

As we continued our walk the brief twilight

commenced, and the sounds of multifarious life came from the vegetation around. The whirring of cicadas;<sup>1</sup> the shrill cries of a vast number and variety of field crickets and grasshoppers, each species sounding its peculiar note; the plaintive hooting of tree frogs—all blended together in one continuous ringing sound. As night came on, many species of frogs and toads in the marshy places joined in the chorus: their croaking and drumming, far louder than anything I had before



CICADA

heard in the same line, being added to the other noises, created an almost deafening din. This uproar of life, I afterwards found, never wholly ceased, night or day: in course of time I became, like other residents, accustomed to it. It is, however, one of the peculiarities of a tropical—at least, a Brazilian—climate which is most likely to surprise a stranger. After my return to England the death-like stillness of summer days in the country appeared to me as strange as the ringing uproar did on my first arrival at Pará.

<sup>1</sup> *Cicadas*: shrill-chirping insects. (See beginning of Chapter IV.)



FIRE-FLY

The object of our visit being accomplished, we returned to the city. The fire-flies were then out in great numbers, flitting about the sombre woods, and even the frequented streets. We turned into our hammocks, well pleased with what we had seen, and full of anticipation with regard to the wealth of natural objects we had come to explore.

## II

During the first few days, we were employed in landing our baggage and arranging our extensive apparatus. We then accepted the invitation of Mr. Miller to make use of his country-house in the suburbs, until we finally decided on a residence. Upon this we made our first essay in housekeeping. We bought cotton hammocks, the universal substitute for beds in this country, cooking utensils and crockery, and engaged a free negro, named Isidoro, as cook and servant-of-all-work. Our first walks were in the immediate suburbs of Pará. The city lies on a corner of land formed by the junction of the river Guamá with the Pará. As I have said before, the forest, which covers the whole country, extends close up to the city streets; indeed, the town is built on a tract of cleared land, and is kept free from the jungle only by the constant care of the Government. Our residence lay on the side of the city nearest the Guamá, on the borders of one



of the low and swampy areas which here extend over a portion of the suburbs.

The tract of land is intersected by well-made suburban roads, the chief of which, the Monguba road, about a mile long, is a magnificent avenue of silk-cotton trees, huge trees whose trunks taper rapidly from the ground upwards, and whose flowers before opening look like red balls studding the branches. This fine road was constructed about the year 1812. At right angles to it run a number of narrow green lanes, and the whole district is drained by a system of small canals or trenches through which the tide ebbs and flows, showing the lowness of the site. Before I left the country, enterprising Presidents had formed a number of avenues lined with cocoanut palms, almond and other trees, in continuation of the Monguba road, over the more elevated and drier ground to the north-east of the city. On the high ground the vegetation has an aspect quite different from that which it presents in the swampy parts. Indeed, with the exception of the palm trees, the suburbs here have an aspect like that of a village green at home. The soil is sandy, and the open commons are covered with a short grassy and shrubby vegetation.

Beyond this, the land again descends to a marshy tract, where, at the bottom of the moist hollows, the public wells are situated. Here all the linen of the city is washed by hosts of noisy negresses, and here also the water-carts are filled—painted hogsheds on wheels, drawn by bullocks. In early

morning, when the sun sometimes shines through a light mist, and everything is dripping with moisture, this part of the city is full of life : vociferous negroes and wrangling Gallegos,<sup>1</sup> the proprietors of the water-carts, are gathered about, jabbering continually, and taking their morning drams in dirty wine-shops at the street corners.

Along these beautiful roads we found much to interest us during the first few days. Suburbs of towns, and open, sunny, cultivated places in Brazil, are tenanted by species of animals and plants which are mostly different from those of the dense forests. I will, therefore, give an account of what we observed of the animal world during our explorations in the immediate neighbourhood of Pará.

The number and beauty of the birds and insects did not at first equal our expectations. The majority of the birds we saw were small and obscurely coloured; they were indeed similar, in general appearance, to such as are met with in country places in England. Occasionally a flock of small parroquets, green, with a patch of yellow on the forehead, would come at early morning to the trees near the main street. They would feed quietly, sometimes chattering in subdued tones, but setting up a harsh scream, and flying off, on being disturbed. Humming-birds we did not see at this time, although I afterwards found them by hundreds when certain trees were in flower.

<sup>1</sup> Natives of Galicia (Spain), who follow this occupation in Lisbon and Oporto, as well as at Pará.

Vultures we only saw at a distance, sweeping round at a great height, over the public slaughter-houses. Several flycatchers, finches, ant-thrushes, a tribe of plainly-coloured birds, intermediate in structure between flycatchers and thrushes, and other small birds, inhabited the neighbourhood. None of these had a pleasing song, except a little brown wren, whose voice and melody resemble those of our English robin. It is often seen hopping and climbing about the walls and roofs of houses and on trees in their vicinity. Its song is more frequently heard in the rainy season, when the silk-cotton trees shed their leaves. The tree is one of the few in the Amazons region which shed all their foliage before any of the new leaf-buds expand.

The naked branches, the sodden ground matted with dead leaves, the grey mist veiling the surrounding vegetation, and the cool atmosphere soon after sunrise, all combine to remind one of autumnal mornings in England. Numbers of tanagers frequented the fruit and other trees in our garden. There are two principal kinds; the females of both are dull in colour, but one kind of male has a beautiful velvety purple and black plumage, the beak being partly white, whilst the other kind of male is of a pale blue colour, with white spots on the wings. In their habits they both resemble the common house-sparrow of Europe, which does not exist in South America, its place being in some measure filled by these familiar tanagers. They are just as lively, restless, bold, and wary; their notes are very similar, and they seem to be almost

as fond of the neighbourhood of man. They do not, however, build their nests on houses.

Another interesting and common bird was the Japím. It belongs to the same family of birds as our starling, magpie, and rook, and has a rich yellow and black plumage, remarkably compact and velvety in texture. The shape of its head is very similar to that of the magpie; it has light grey eyes, which give it the same knowing expression. It is social in its habits; and builds its nest, like the English rook, on trees in the neighbourhood of habitations. But the nests are quite differently constructed, being shaped like purses, two feet in length, and suspended from the slender branches all round the tree, some of them very near the ground. The entrance is on the side near the bottom of the nest. The bird is a great favourite with the Brazilians of Pará: it is a noisy, stirring, babbling creature, passing constantly to and fro, chattering to its comrades, and is very ready at imitating other birds, especially the poultry. There was at one time a weekly newspaper published at Pará, called *The Japim*; the name being chosen, I suppose, on account of the babbling ways of the bird. Its eggs are nearly round, and of a bluish-white colour, speckled with brown.

Of other vertebrate animals we saw very little, except of the lizards. These are sure to attract the attention of the new-comer from Northern Europe, by reason of their strange appearance, great numbers, and variety. The species which

are seen crawling over the walls of buildings in the city, are different from those found in the forest or in the interior of houses. They are unpleasant-looking animals, with colours like those of the stone and mud walls on which they are seen. The house lizards belong to a peculiar family, the *Geckos*, and are found even in the best-kept chambers, most frequently on the walls and ceilings, to which they



GECKO (Natural History Museum)

cling motionless by day, being active only at night. They are of speckled grey or ashy colours. The structure of their feet is beautifully adapted for clinging to and running over smooth surfaces; the underside of their toes being expanded into cushions, beneath which folds of skin form a series of flexible plates. By means of this apparatus, they can walk or run across a smooth ceiling with their backs downwards.



The Geckos are very repulsive in appearance. The Brazilians firmly believe them to be poisonous; they are, however, harmless creatures. Those found in houses are small; but I have seen others of great size, in crevices of tree trunks in the forest. Sometimes Geckos are found with forked tails. I used often to amuse myself in the suburbs, whilst resting in the verandah of our house during the heat of mid-day, by watching the variegated green, brown, and yellow ground-lizards. They would come nimbly forward, and commence grubbing with their fore feet and snouts around the roots of herbage, searching for insect larvæ. On the slightest alarm they would scamper off; their tails cocked up in the air as they waddled awkwardly away, evidently a nuisance to them in their flight.

Next to the birds and lizards, the insects of the suburbs of Pará deserve a few remarks. The species observed in the weedy and open places, as already remarked, were generally different from those which dwell in the shades of the forest. In the gardens, numbers of fine showy butterflies were seen. There were two swallow-tailed species, similar in colours to an English kind; a white one, and two or three species of brimstone and orange coloured butterflies, which do not belong, however, to the same genus as our English species. In weedy places a beautiful butterfly, with eye-like spots on its wings, was common, the only Amazonian species which is at all nearly related to our Admiral and Peacock Butterflies.

One day we made our first acquaintance with



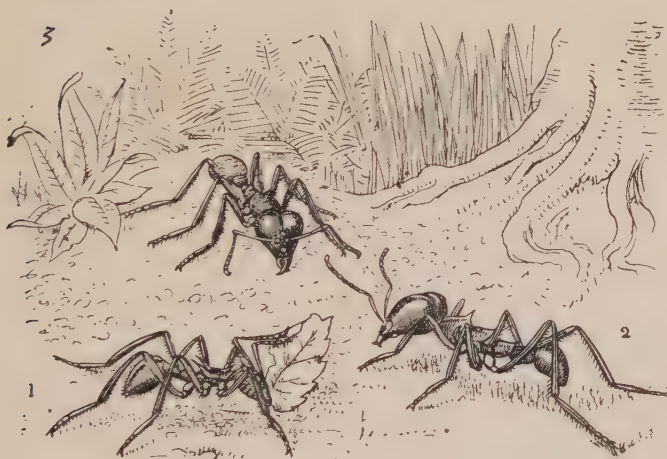
SWALLOW-TAILED BUTTERFLY  
Male (upper and under sides) and Female

two of the most beautiful butterflies of nature. A little beyond our house, one of the narrow green lanes led down to a moist hollow, where there was a public well in a picturesque nook, buried in a grove of palm-trees. On the tree-trunks, walls, and palings, grew a great quantity of climbing plants, with large glossy heart-shaped leaves. These plants were the resort of these two exquisite species, and we captured a great number of specimens. They are of extremely delicate texture. The wings are cream-coloured; the hind pair have several tail-like appendages, and are spangled beneath as if with silver. Their flight is very slow and feeble; they seek the protected under-surface of the leaves, and in repose close their wings over the back, so as to expose the brilliantly spotted under-surface.

### III

I will pass over the many other orders and families of insects, and proceed at once to the ants. These were in great numbers everywhere, but I will mention here only two kinds. We were amazed at seeing ants an inch and a quarter in length, and stout in proportion, marching in single file through the thickets. The colonies of these ants consist of a small number of individuals, and are established about the roots of slender trees. It is a stinging species, but the sting is not so severe as in many of the smaller kinds. There was

nothing peculiar or attractive in the habits of this giant among the ants. Another far more interesting species was the *Saüba*. This ant is seen everywhere about the suburbs, marching to and fro in broad columns. From its habit of despoiling the most valuable cultivated trees of their foliage, it



## SAÜBA ANTS

1. Minor Worker. 2. Major Worker.  
3. Major Worker with Single Eye.

is a great scourge to the Brazilians. In some districts it is so abundant that agriculture is almost impossible, and everywhere complaints are heard of the terrible pest.

The workers of this species are of three orders, and vary in size from two to seven lines; some idea of them may be obtained from the accompanying woodcut. The true working-class of a colony is

formed by the small-sized order of workers, the worker-minors as they are called (Fig. 1). The two other kinds have enormously swollen and massive heads; in one (Fig. 2), the head is highly polished; in the other (Fig. 3), it is opaque and hairy. The worker-minors vary greatly in size, some being double the bulk of others. The entire body is very solid, and of a pale reddish-brown colour. The middle segment is armed with three pairs of sharp spines; the head, also, has a pair of similar spines proceeding from the cheeks behind.

In our first walks we were puzzled to account for large mounds of earth, of a different colour from the surrounding soil, which were thrown up in the plantations and woods. Some of them were very extensive, being forty yards in circumference, but not more than two feet in height. We soon ascertained that these were the work of the Saübas, being the outworks, or domes, which protect the entrances to their vast underground galleries. On close examination, I found the earth of which they are composed to consist of very minute granules, massed without cement, and forming many rows of little ridges and turrets. The difference in colour from the upper soil is owing to their being formed of the undersoil, brought up from a considerable depth. It is very rarely that the ants are seen at work on these mounds; the entrances seem to be generally closed; only now and then, when some particular work is going on, are the galleries opened. The entrances are small and numerous; I succeeded in removing portions of



the dome in smaller hillocks, and then I found that the minor entrances led, at the depth of about two feet, to one broad elaborately-worked gallery or mine, which was four or five inches in diameter.

This habit in the Saüba ant of clipping and carrying away immense quantities of leaves has long been recorded in books on natural history. When employed on this work, their processions look like a multitude of animated leaves on the march. In some places I found an accumulation of such leaves, all circular pieces, about the size of a sixpence, lying on the pathway, unattended by ants, and at some distance from any colony. Such heaps are always found to be removed when the place is revisited the next day.

In course of time I had plenty of opportunities of seeing them at work. They mount the tree in multitudes, the individuals being all worker-minors. Each one places itself on the surface of a leaf, and cuts with its sharp scissor-like jaws a nearly semicircular cut on the upper side; it then takes the edge between its jaws, and by a sharp jerk detaches the piece. Sometimes they let the leaf drop to the ground, where a little heap accumulates, until carried off by another relay of workers; but, generally, each marches off with the piece it has worked upon, and as all take the same road to their colony, the path they follow becomes in a short time smooth and bare, looking like the impression of a cart-wheel through the herbage.

It is a most interesting sight to see the vast host of busy little labourers occupied on this work.

Unfortunately they choose cultivated trees for their purpose. This ant is quite peculiar to tropical America; it sometimes despoils the young trees of species growing wild in its native forests; but seems to prefer, when within reach, plants imported from other countries, such as the coffee and orange trees.

It has not hitherto been shown satisfactorily to what use it applies the leaves. I discovered this only after much time spent in investigation. The leaves are used to thatch the domes which cover the entrances to their underground dwellings, thereby protecting from the deluging rains the young broods in the nests beneath. The larger mounds are so extensive that few persons would attempt to remove them for the purpose of examining their interior; but smaller hillocks, covering other entrances to the same system of tunnels and chambers, may be found in sheltered places, and these are always thatched with leaves, mingled with granules of earth. The heavily-laden workers, each carrying its segment of leaf vertically, troop up and cast their burthens on the hillock; another relay of labourers place the leaves in position, covering them with a layer of earthy granules, which are brought one by one from the soil beneath.

The underground abodes of this wonderful ant are known to be very extensive. The Rev. Hamlet Clark has related that the Saüba of Rio de Janeiro, a species closely allied to ours, has excavated a tunnel under the bed of a river, at a place where it is as broad as the Thames at London Bridge. At

some rice mills, near Pará, these ants once pierced the embankment of a large reservoir: the great body of water, which it contained, escaped before the damage could be repaired. In the Botanic Gardens, at Pará, an enterprising French gardener tried all he could think of to extirpate the Saüba. With this object he made fires over some of the main entrances to their colonies, and blew the fumes of sulphur down the galleries by means of bellows. I saw the smoke issue from a great number of outlets, one of which was seventy yards distant from the place where the bellows were used.

Besides injuring and destroying young trees by despoiling them of their foliage, the Saüba ant is troublesome to the inhabitants from its habit of plundering the stores of provisions in houses at night, for it is even more active by night than in the day-time. At first I was inclined to discredit the stories of their entering houses and carrying off grain by grain the farinha meal, the bread of the poorer classes of Brazil. At length, whilst residing at an Indian village on the Tapajos (a tributary of the Amazons), I had ample proof of the fact. One night my servant woke me three or four hours before sunrise by calling out that the rats were robbing the meal baskets; the article at that time being scarce and dear. I got up, listened, and found the noise was very unlike that made by rats. So I took the light and went into the store-room, which was close to my sleeping-place.

I there found a broad column of Saüba ants, consisting of thousands of individuals, as busy as

possible, passing to and fro between the door and my precious baskets. Most of those passing outwards were laden each with a grain, which was, in some cases, larger and many times heavier than the bodies of the carriers. *Farinha* consists of grains of similar size and appearance to the tapioca of our shops; both are products of the same root. It was amusing to see some of the dwarfs, the smallest members of their family, staggering along, completely hidden under their load. The baskets, which were on a high table, were entirely covered with ants, many hundreds of whom were employed in snipping the dry leaves which served as lining. This produced the rustling sound which had at first disturbed us.

My servant told me that they would carry off the whole contents of the two baskets (about two bushels) in the course of the night, if they were not driven off; so we tried to kill them with our wooden clogs. It was impossible, however, to prevent fresh hosts coming in as fast as we killed their companions. They returned the next night; and I was then obliged to lay trains of gunpowder along their line, and blow them up. This, repeated many times, at last seemed to scare them, for we were free from their visits during the remainder of my residence at the place. What they did with the hard dry grains I was never able to ascertain.

- Ants consist of three sets of individuals, or of three sexes—namely, males, females, and workers; the last-mentioned being undeveloped females.

When engaged in leaf-cutting, plundering farinha, and other operations, two classes of workers are always seen. All the work, however, is done by the individuals which have small heads, whilst those which have enormously large heads, the worker-majors, are observed to be simply walking about. I could never satisfy myself as to the



SAÜBA ANT—(Female)

function of these worker-majors. They are not the soldiers or defenders of the working portion of the community, like the armed class in the white ants; for they never fight.

The third order of workers is the most curious of all. If the top of a small, fresh hillock, one in which the thatching process is going on, be taken off, a broad cylindrical shaft is disclosed, at a depth of about two feet from the surface. If this be



probed with a stick, which may be done to the extent of three or four feet without touching bottom, a small number of colossal fellows will slowly begin to make their way up the smooth sides of the mine. Their heads are of the same size as those of the class Fig. 2 (see p. 21); but the front is clothed with hairs, instead of being polished, and they have in the middle of the forehead a single eye. This frontal eye is totally wanting in the other workers, and is not known in any other kind of ant.

Most of the labour which we see performed by the workers has for its end the feeding and welfare of the young brood, which are helpless grubs. The true females are incapable of attending to the wants of their offspring; and it is on the poor sterile workers that the entire care devolves. The workers are also the chief agents in carrying out the different migrations of the colonies to found new homes. It is amusing to see the activity and excitement which reign in an ants' nest when the exodus of the winged individuals is taking place. The workers clear the roads of exit, and show the most lively interest in their departure, although it is highly improbable that any of them will return to the same colony.

The swarming or exodus of the winged males and females of the Saüba ant takes place in January and February, that is, at the commencement of the rainy season. They come out in the evening in vast numbers, causing quite a commotion in the streets and lanes. They are of



very large size, the female measuring no less than two and a quarter inches in expanse of wing; the male is not much more than half this size. They are so eagerly preyed upon by insects that on the morning after their flight not an individual is to be seen.

#### IV

The province of Pará, or, as we may now say, the two provinces of Pará and the Amazons, contain an area of 800,000 square miles; the population of which is only about 230,000, or in the ratio of one person to four square miles! The country is covered with forests, and the soil is fertile in the extreme even for a tropical country. It is intersected throughout by broad and deep navigable rivers. It is the pride of the people to call the Amazons *the Mediterranean of South America*. The colossal stream perhaps deserves the name, for not only have the main river and its principal tributaries an immense expanse of water bathing the shores of extensive and varied regions, but there is also throughout a system of back channels, connected with the main rivers by narrow outlets and linking together a series of lakes, some of which are fifteen, twenty, and thirty miles in length. The whole Amazons valley is thus covered by a network of navigable waters, forming a vast inland freshwater sea with endless creeks and channels, rather than a river.

## CHAPTER II

### PARÁ (*continued*)

The Swampy Forests of Pará—A Portuguese Landed Proprietor—Country House at Nazareth—Life of a Naturalist under the Equator—The Drier Virgin Forests—Magoary Creek—The Aborigines (Natives).

#### I

AFTER having resided about a fortnight with Mr. Miller, we heard of another similar country-house to be let, much better situated for our purpose, in the village of Nazareth, a mile and a half from the city and close to the forest. The owner was an old Portuguese gentleman named Danin, who lived at his tile manufactory at the mouth of the Una, a small river lying two miles below Pará. We resolved to walk to his place through the forest, a distance of three miles, although the road was said to be scarcely passable at this season of the year, and the Una much more easily accessible by boat. We were glad, however, of this early opportunity of traversing the rich swampy forest which we had admired so much from the deck of the ship; so, about eleven o'clock one sunny morning, we set off in that direction.

This part of the forest afterwards became one of my best hunting-grounds. I will narrate the

incidents of the walk, giving my first impressions and some remarks on the wonderful vegetation. The forest is very similar on most of the low lands, and therefore one description will do for all.

On leaving the town we walked along a straight, suburban road constructed above the level of the surrounding land. It had low swampy ground on each side, built upon, however, and containing several spacious houses, which were embowered in magnificent foliage. Leaving the last of these, we arrived at a part where the lofty forest towered up like a wall five or six yards from the edge of the path to the height of, probably, a hundred feet. The tree trunks were only seen partially here and there, nearly the whole frontage from ground to summit being covered with creeping plants, all of the most vivid shades of green; scarcely a flower to be seen, except in some places a solitary scarlet passion-flower set in the green mantle like a star.

The low ground on the borders between the forest wall and the road was encumbered with a tangled mass of bushy and shrubby vegetation, amongst which prickly mimosas<sup>1</sup> were very numerous, covering the other bushes in the same way as brambles do in England. Other dwarf mimosas trailed along the ground close to the edge of the road, shrinking at the slightest touch of the feet as we passed by. Cassia trees, with their elegant foliage and yellow flowers, formed a great proportion of

<sup>1</sup> Leguminous plants or shrubs (many species, including the sensitive plants).



the lower trees, and tree-like arums grew in groups around the swampy hollows.

Over the whole fluttered a larger number of brilliantly-coloured butterflies than we had yet seen; some wholly orange or yellow, others coloured black, and varied with blue, red, and yellow. One magnificent grassy-green species especially attracted our attention. Near the ground hovered many other smaller species very similar in appearance to those found at home, attracted by the flowers of numerous leguminous and other shrubs. Besides butterflies, there were few other insects except dragonflies, which were in great numbers, similar in shape to English species, but some of them looking very different on account of their fiery red colours.

After stopping repeatedly to examine and admire, we at length walked onward. The road then ascended slightly, and the soil and vegetation became suddenly altered in character. The shrubs here were grasses, low sedges and other plants, smaller in foliage than those growing in moist grounds. The forest was second growth, low, consisting of trees which had the general aspect of laurels and other evergreens in our gardens at home: the leaves glossy and dark green. Some of them were elegantly veined and hairy, whilst many, scattered amongst the rest, had smaller foliage, but these were not sufficient to subtract much from the general character of the whole.

The sun, now, for we had loitered long on the road, was exceedingly powerful. The day was

most brilliant; the sky without a cloud. In fact, it was one of those glorious days which announce the commencement of the dry season. The radiation of heat from the sandy ground was visible by the quivering motion of the air above it. We saw or heard no mammals or birds; a few cattle belonging to an estate down a shady lane were congregated, panting, under a cluster of wide-spreading trees. The very soil was hot to our feet, and we hastened onward to the shade of the forest which we could see not far ahead. At length, on entering it, what a relief! We found ourselves in a moderately broad pathway or alley, where the branches of the trees crossed overhead and produced a delightful shade. The woods were at first of recent growth, dense, and utterly impenetrable; the ground, instead of being clothed with grass and shrubs as in the woods of Europe, was everywhere carpeted with fern-shaped mosses.

Gradually the scene became changed. We descended slightly from an elevated, dry, and sandy area to a low and swampy one; a cool air breathed on our faces, and a mouldy smell of rotting vegetation greeted us. The trees were now taller, the underwood less dense, and we could obtain glimpses into the wilderness on all sides. The leafy crowns of the trees, scarcely two of which could be seen together of the same kind, were now far away above us, in another world as it were. We could only see at times, where there was a break above, the tracery of the foliage against the clear blue sky. Sometimes the leaves were of the shape of

large outstretched hands; at others, finely cut or feathery.

Below, the tree trunks were everywhere linked together by the woody, flexible stems of climbing and creeping trees, whose foliage is far away above, mingled with that of the taller independent trees, Some were twisted in strands like cables, others had thick stems contorted in every variety of shape, entwining snake-like round the tree trunks, or forming gigantic loops and coils among the larger branches; others, again, were of zigzag shape, or indented like the steps of a staircase, sweeping from the ground to a giddy height.

It interested me much afterwards to find that these climbing trees do not form any particular family. There is no distinct group of plants whose especial habit is to climb, but species of many and the most diverse families, the bulk of whose members are not climbers, seem to have been driven to adopt this habit. There is even a climbing kind of palms. These have slender, thickly-spined, and flexuous stems, which twine about the taller trees from one to the other, and grow to an incredible length. The leaves, which have the ordinary shape of the family, are emitted from the stems at long intervals, instead of being collected into a dense crown, and have at their tips a number of long recurved spines.

These structures are excellent contrivances to enable the trees to secure themselves by in climbing, but they are a great nuisance to the traveller, for they sometimes hang over the pathway and catch the hat or clothes, dragging off the one or tearing

the other as he passes. The number and variety of climbing trees in the Amazons forests are interesting, taken in connection with the fact of the very general tendency of the animals, also, to become climbers.

All the Amazonian, and in fact all South American, monkeys are climbers. There is no group answering to the baboons of the Old World, which live on the ground. The birds of the country, which correspond to the fowls and pheasants of Asia and Africa, are all adapted by the position of the toes to perch on trees, and it is only on trees, at a great height, that they are to be seen.

Farther on, the ground became more swampy, and we had some difficulty in picking our way. The wild banana here began to appear, and, as it grew in masses, imparted a new aspect to the scene. The leaves of this beautiful plant are like broad sword-blades, eight feet in length and a foot broad; they rise straight upwards, alternately, from the top of a stem five or six feet high. Numerous kinds of plants with leaves similar in shape to these, but smaller, clothed the ground. The trunks of the trees were clothed with climbing ferns, and other plants with large, fleshy, heart-shaped leaves. Bamboos and other tall grass and reed-like plants arched over the pathway.

The appearance of this part of the forest was strange in the extreme; description can convey no adequate idea of it. The reader who has visited Kew may form some notion by conceiving a vegetation like that in the great palm-house

spread over a large tract of swampy ground, but he must fancy it mingled with large trees similar to our oaks and elms covered with creepers and parasites, and figure to himself the ground encumbered with fallen and rotting trunks, branches, and leaves; the whole illuminated by a glowing vertical sun, and reeking with moisture.

We at length emerged from the forest, on the banks of the Una, near its mouth. It was here about one hundred yards wide. The residence of Senhor Danin stood on the opposite shore; a large building, white-washed and red-tiled as usual, raised on wooden piles above



WILD BANANA

the humid ground. The second story was the part occupied by the family, and along it was an open verandah, where people, male and female, were at work. Below were several negroes employed carrying clay on their heads. We called out for a boat, and one of them crossed over to fetch us.

Senhor Danin received us with the usual formal politeness of the Portuguese; he spoke English very well, and after we had arranged our business we

remained conversing with him on various subjects connected with the country. Like all employers in this province he was full of one topic—the scarcity of hands. He had made great exertions to introduce white labour, but had failed, after having brought numbers of men from Portugal and other countries under engagement to work for him. They all left him one by one, soon after their arrival. The abundance of unoccupied land, the liberty that exists, a state of things produced by the half-wild canoe-life of the people, and the ease with which a mere subsistence can be obtained with moderate work, tempt all to quit regular labour as soon as they can. He complained also of the dearness of slaves, owing to the prohibition of the African traffic, telling us that formerly a slave could be bought for 120 dollars, whereas they are now difficult to procure at 400 dollars.

Mr. Danin told us that he had travelled in England and the United States, and that he had now two sons completing their education in those countries. I afterwards met with many enterprising persons of Mr. Danin's order, both Brazilians and Portuguese; their great ambition is to make a voyage to Europe or North America, and to send their sons to be educated there. When we were ready to depart, Senhor Danin lent a canoe and two negroes to take us to the city, where we arrived in the evening after a day rich in new experiences.



## II

Shortly afterwards we took possession of our new residence. The house was a square building, consisting of four equal-sized rooms; the tiled roof projected all round, so as to form a broad verandah, cool and pleasant to sit and work in. The cultivated ground, which appeared as if newly cleared from the forest, was planted with fruit trees and small plots of coffee and mandioca. The entrance to the grounds was by an iron-grille gateway from a grassy square, around which were built the few houses and palm-thatched huts which then constituted the village. The most important building was the chapel of our Lady of Nazareth, which stood opposite our place. The saint here enshrined was a great favourite. In and about the chapel were the offerings that had been made to her. But most curious of all was a ship's boat, deposited here by the crew of a Portuguese vessel which had foundered, a year or two before our arrival, in a squall off Cayenne; part of them having been saved in the boat, after invoking the protection of the saint here enshrined.

The annual festival in honour of our Lady of Nazareth is the greatest of the Pará holidays; many persons come to it from a neighbouring city, 300 miles distant. The popularity of the festa is partly owing to the beautiful weather that prevails when it takes place, namely, in the middle of the fine season, during the ten days preceding the full moon in October or November. Pará is

then seen at its best. The weather is not too dry, for three weeks never follow in succession without a shower; so that all the glory of verdure and flowers can be enjoyed with clear skies. The moonlit nights are then especially beautiful; the atmosphere is transparently clear, and the light sea-breeze produces an agreeable coolness.

We now settled ourselves for a few months' regular work. We had the forest on three sides of us; it was the end of the wet season; most species of birds had finished moulting, and every day the insects increased in number and variety. Behind the house, after several days' exploration, I found a series of pathways through the woods, which led to the Una road. The paths hereabout were very productive of insects, and being entirely under shade were very pleasant for strolling. Close to our doors began the main forest road. It was broad enough for two horsemen abreast, and branched off in three directions; this road had been long in disuse and was now grown up.

Our researches were made in various directions along these paths, and every day produced us a number of new and interesting species. Collecting, preparing our specimens, and making notes, kept us well occupied. One day was so much like another, that a general description of the daily round will be sufficient to give an idea of how days pass to naturalists under the equator.

We used to rise soon after dawn, when Isidoro would go down to the city, after supplying us with a cup of coffee, to purchase the fresh provisions

for the day. The two hours before breakfast were devoted to bird study. At that early period of the day the sky was invariably cloudless (the thermometer marking  $72^{\circ}$  or  $73^{\circ}$  Fahr.); the heavy dew or the previous night's rain, which lay on the moist foliage, becoming quickly dissipated by the glowing sun, which, rising straight out of the east, mounted rapidly towards the zenith.

All nature was fresh, new leaf and flower-buds expanding rapidly. Some mornings a single tree would appear in flower amidst what was the preceding evening a uniform green mass of forest—a dome of blossom suddenly created as if by magic. The birds were all active; from the wild-fruit trees, not far off, we often heard the shrill yelping of the Toucans. Small flocks of parrots flew over on most mornings, at a great height, appearing in distinct relief against the blue sky, always two by two, chattering to each other, the pairs being separated by regular intervals; their bright colours, however, were not apparent at that height. After breakfast we devoted the hours from 10 a.m. to 2 or 3 p.m. to insect study, the best time for insects in the forest being a little before the greatest heat of the day.

The heat increased rapidly towards two o'clock ( $92^{\circ}$  and  $93^{\circ}$  Fahr.), by which time every voice of bird or mammal was hushed; only in the trees was heard at intervals the harsh whirr of a cicada. The leaves, which were so moist and fresh in early morning, now become lax and drooping; the flowers shed their petals. Our neighbours the

Indian and Mulatto<sup>1</sup> inhabitants of the open palm-thatched huts, as we returned home fatigued with our ramble, were either asleep in their hammocks or seated on mats in the shade, too languid even to talk. On most days in June and July a heavy shower would fall some time in the afternoon, producing a most welcome coolness.

The approach of the rain-clouds was very interesting to observe. First, the cool sea-breeze, which commenced to blow about ten o'clock and which had increased in force with the increasing power of the sun, would flag and finally die away. The heat and electric tension of the atmosphere would then become almost insupportable. Languor and uneasiness would seize on every one; even the denizens of the forest betraying it by their motions. White clouds would appear in the east and gather into masses, with an increasing blackness along their lower portions. The whole eastern horizon would become almost suddenly black, and this would spread upwards, the sun at length becoming obscured. Then the rush of a mighty wind is heard through the forest, swaying the tree-tops; a vivid flash of lightning bursts forth, then a crash of thunder, and down streams the deluging rain. Such storms soon cease, leaving bluish-black motionless clouds in the sky until night.

Meantime all nature is refreshed; but heaps of flower-petals and fallen leaves are seen under the trees. Towards evening life revives again, and the ringing uproar is resumed from bush and tree.

<sup>1</sup> *Mulatto*: persons of mixed negro and European blood.

The following morning the sun again rises in a cloudless sky, and so the cycle is completed; spring, summer, and autumn, as it were, in one tropical day. The days are more or less like this throughout the year in this country.

A little difference exists between the dry and wet seasons; but generally, the dry season, which lasts from July to December, is varied with showers, and the wet, from January to June, with sunny days. Plants do not flower or shed their leaves, nor do birds moult, pair, or breed simultaneously. In Europe, a woodland scene has its spring, its summer, its autumnal, and its winter aspects. In the equatorial forests the aspect is the same or nearly so every day in the year: budding, flowering, fruiting, and leaf shedding are *always* going on in one species or other. The activity of birds and insects proceeds without interruption, each species having its own separate times; the colonies of wasps, for instance, do not die off annually, leaving only the queens, as in cold climates; but the succession of colonies goes on incessantly. It is never either spring, summer, or autumn, but each day is a combination of all three.

Our evenings were generally fully employed preserving our collections, and making notes. We dined at four, and took tea about seven o'clock. Sometimes we walked to the city to see Brazilian life or enjoy the pleasures of European and American society. And so the time passed away from June 15th to August 26th. During this period we made two excursions of greater length

to the rice and saw-mills of Magoary, an establishment owned by an American gentleman, Mr. Upton, situated on the banks of a creek in the heart of the forest, about twelve miles from Pará.

### III

I will narrate some of the incidents of these excursions, and give an account of the more interesting observations made on the Natural History and inhabitants of these interior creeks and forests.

Our first trip to the mills was by land. The creek on whose banks they stand communicates with the river Pará, through another larger creek, the Magoary; so that there is a passage by water; but this is about twenty miles round. We started at sunrise, taking Isidoro with us. The road plunged at once into the forest after leaving Nazareth, so that in a few minutes we were enveloped in shade. For some distance the woods were of second growth, the original forest near the town having been formerly cleared or thinned. They were dense on account of the close growth of the young trees and the mass of thorny shrubs and creepers. These thickets swarmed with ants and ant-thrushes; they were also frequented by a species of puff-throated manikin, a little bird which flies occasionally across the road, emitting a strange noise, made, I believe, with its wings, and resembling the clatter of a small wooden rattle.



A mile or a mile and a half farther on, the character of the woods began to change, and we then found ourselves in the primæval forest. The appearance was greatly different from that of the swampy tract I have already described. The land was rather more elevated and undulating;



VIRGIN FOREST

the many swamp plants with their long and broad leaves were wanting, and there was less under-wood, although the trees were wider apart. Through this wilderness the road continued for seven or eight miles. The same unbroken forest extends a distance of about 300 miles southward and eastward of Pará. In almost every hollow part

the road was crossed by a brook, whose cold, dark, leaf-stained waters were bridged over by tree trunks.

The ground was carpeted, as usual, by fern-shaped mosses, but it was also encumbered with masses of vegetable rot and a thick coating of dead leaves. Fruits of many kinds were scattered about, amongst which were many sorts of beans, some of the pods a foot long, flat and leathery in texture, others hard as stone. In one place there was a quantity of large empty wooden vessels. They are called monkey's drinking-cups, and are the capsules which contain the nuts sold, under the name just mentioned, in Covent Garden Market. At the top of the vessel is a circular hole, in which a natural lid fits neatly. When the nuts are ripe this lid becomes loosened, and the heavy cup falls with a crash, scattering the nuts over the ground. The tree which yields the nut is of immense height. It is closely allied to the Brazil-nut tree, whose seeds are also enclosed in large woody vessels; but these have no lid, and fall entire to the ground.

What attracted us chiefly were the colossal trees. The general run of trees had not remarkably thick stems; the great and uniform height to which they grow without emitting a branch, was a much more noticeable feature than their thickness; but at intervals of a furlong or so a veritable giant towered up. Only one of these monstrous trees can grow within a given space; it monopolises the domain, and none but those of much inferior

size can find a footing near it. The round trunks of these larger trees were generally about twenty to twenty-five feet in circumference. The total height of these trees, stem and crown together, may be estimated at from 180 to 200 feet : where



BUTTRESSED FIG TREE

one of them stands, the vast dome of foliage rises above the other forest trees as a domed cathedral does above the other buildings in a city.

A very remarkable feature in these trees is the growth of buttresses around the lower part of their stems. The spaces between these buttresses, which are generally thin walls of wood, form

spacious chambers, and may be compared to stalls in a stable : some of them are large enough to hold half-a-dozen persons. The purpose of these structures is as obvious, at the first glance, as that of the similar props of brickwork which support a high wall. They are not peculiar to one species, but are common to most of the larger forest trees. Their nature and manner of growth are explained when a series of young trees of different ages is examined. It is then seen that they are the roots which have raised themselves ridge-like out of the earth ; growing gradually upwards as the increasing height of the tree required augmented support. Thus they are plainly intended to sustain the massive crown and trunk in these crowded forests.

The other grand forest trees whose native names we learnt, were the White or King tree, and the Cow tree. The last-mentioned is the most remarkable. We had already heard a good deal about this tree, and about its producing from its bark a copious supply of milk as pleasant to drink as that of the cow. We had also eaten its fruit in Pará, where it is sold in the streets by negro market women ; and had heard a good deal of the durableness in water of its timber. We were glad, therefore, to see this wonderful tree growing in its native wilds. It is one of the largest of the forest monarchs, and is peculiar in appearance on account of its deeply-scored reddish and ragged bark. A decoction of the bark, I was told, is used as a red dye for cloth.

A few days afterwards we tasted its milk, which was drawn from dry logs that had been standing many days in the hot sun, at the saw-mills. It was pleasant with coffee, but had a slight rankness when drunk pure; it soon thickens to a glue, which is excessively tenacious, and is often used to cement broken crockery. I was told that it was not safe to drink much of it, for a slave had recently nearly lost his life through taking it too freely.

In some parts of the road ferns were conspicuous objects. In one place the whole forest glade formed a vast fernery; the ground was covered with them, and the tree trunks were clothed with climbing kinds. I saw no tree ferns in the Pará district; they belong to hilly regions; some occur, however, on the Upper Amazons.

Such were the principal features in the vegetation of the wilderness; but where were the flowers? To our great disappointment we saw scarcely any. Orchids are very rare in the dense forests of the low lands. I believe it is now pretty certain that the majority of forest trees in Brazil have small flowers. Flower-frequenting insects are also rare in the forest. Of course they would not be found where their favourite food was wanting, but I always noticed that even where flowers occurred in the forest, few or no insects were seen upon them. In the open country on the Lower Amazons, flowering trees and bushes are more abundant, and there a large number of floral insects are attracted. The forest bees of South America are





"THE FOREST GLADE FORMED A VAST FERNERY"



more frequently seen feeding on the sweet sap which exudes from the trees, than on flowers.

We were disappointed also in not meeting with any of the larger animals in the forest. There was no tumultuous movement, or sound of life. We did not see or hear monkeys, and no tapir or jaguar crossed our path. Birds, also, appeared to be exceedingly scarce. We heard, however, occasionally, the long-drawn, wailing note of a kind of partridge; and, also, in the hollows on the banks of the rivulets, the noisy notes of another bird, which seemed to go in pairs, amongst the tree-tops, calling to each other as they went. These notes resounded through the wilderness. Another solitary bird had a most sweet and melancholy song; it consisted simply of a few notes, uttered in a plaintive key. It was probably a species of warbler. All these notes of birds are very striking, and characteristic of the forest.

I afterwards saw reason to modify my opinion, founded on these first impressions, with regard to the amount and variety of animal life in this and other parts of the Amazonian forests. There is, in fact, a great variety of mammals, birds, and reptiles, but they are widely scattered, and all very shy of man. The region is so extensive, and uniform in the forest clothing of its surface, that it is only at long intervals that animals are seen in abundance when some particular spot is found which is more attractive than others. The huntsman would be disappointed who expected to find here flocks of animals similar to the buffalo herds

of North America, or the swarms of antelopes of Southern Africa.

We often read, in books of travels, of the silence and gloom of the Brazilian forests. They are realities, and the impression deepens on a longer acquaintance. The few sounds of birds are of that pensive or mysterious character which intensifies the feeling of solitude rather than imparts a sense of life and cheerfulness. Sometimes, in the midst of the stillness, a sudden yell or scream will startle one; this comes from some defenceless fruit-eating animal, which is pounced upon by a tiger-cat or stealthy boa-constrictor. Morning and evening the howling monkeys make a most fearful and harrowing noise, under which it is difficult to keep up one's buoyancy of spirit. The feeling of inhospitable wildness which the forest inspires, is increased tenfold under this fearful uproar. Often, even in the still hours of midday, a sudden crash will be heard resounding afar through the wilderness, as some great bough or entire tree falls to the ground.

There are, besides, many sounds which it is impossible to account for. I found the natives generally as much at a loss in this respect as myself. Sometimes a sound is heard like the clang of an iron bar against a hard, hollow tree, or a piercing cry rends the air; these are not repeated, and the succeeding silence tends to heighten the unpleasant impression which they make on the mind. With the native it is always the Wild Man or Spirit of the forest, which produces all

noises they are unable to explain. Sometimes he is described as a kind of orang-otang, being covered with long, shaggy hair, and living in trees. At others he is said to have cloven feet, and a bright red face. He has a wife and children, and sometimes comes to steal the mandioca.

At one time I had a *mameluco*<sup>1</sup> youth in my service, whose head was full of the legends and superstitions of the country. He always went with me into the forest; in fact, I could not get him to go alone, and whenever we heard any of the strange noises mentioned above, he used to tremble with fear. He would crouch down behind me, and beg of me to turn back; his alarm ceasing only after he had made a charm to protect us from the Wild Man. For this purpose he took a young palm leaf, plaited it, and formed it into a ring, which he hung to a branch on our track.

At length, after a six hours' walk, we arrived at our destination, the last mile or two having been again through second-growth forest. The mills formed a large pile of buildings, pleasantly situated in a cleared tract of land, many acres in extent, and everywhere surrounded by the perpetual forest. We were received in the kindest manner by the overseer, Mr. Leavens, who showed us all that was interesting about the place, and took us to the best spots in the neighbourhood for birds and insects. The mills were built a long time ago by a wealthy Brazilian. They had belonged to Mr. Upton for many years.

<sup>1</sup> *Mamelucos*: persons of mixed Indian and negro descent.

The creek at the mills is only a few yards wide ; it winds about between two lofty walls of forest for some distance, then becomes much broader, and finally joins the Magoary. There are many other creeks or channels, which lead to retired hamlets and scattered houses, inhabited by people of mixed white, Indian, and negro descent. Many of them did business with Mr. Leavens, bringing for sale their little harvests of rice, or a few logs of timber. It was interesting to see them in their little, heavily-laden boats. Sometimes the boats were managed by handsome, healthy young lads, loosely clad in straw hat, white shirt, and dark blue trousers, turned up to the knee. They steered, paddled, and managed the boating pole with much grace and dexterity.

We saw much of these creeks ; besides, our second visit to the mills was by water. All these smaller rivers, throughout the Pará estuary, are of the nature of creeks. They serve the purpose of draining the land, but instead of having a constant current one way, they have a regular ebb and flow with the tide. The natives call them canoe-paths. These channels, which are infinite in number in this great river delta, are characteristic of the country. The land is everywhere covered with dense forests ; the houses and villages are all on the waterside, and nearly all communication is by water.

This semi-aquatic life of the people is one of the most interesting features of the country. For short excursions, and for fishing in still waters, a small boat is universally used. It is made of five

planks; a broad one for the bottom, bent into the proper shape by the action of heat, two narrow ones for the sides, and two small triangular pieces for stem and stern. It has no rudder; the paddle serves for both steering and propelling. This boat takes here the place of the horse, mule, or camel of other regions. Besides one or more boats, almost every family has a larger canoe. This is fitted with two masts, a rudder, and keel, and has an arched awning or cabin near the stern, made of a framework of tough climbing plants, thatched with palm leaves. In the canoe they will cross stormy rivers fifteen or twenty miles broad.

The natives are all boat-builders. It is often remarked, by white residents, that an Indian is a carpenter and shipwright by nature. It is astonishing to see in what crazy vessels these people will risk themselves. I have seen Indians cross rivers in a leaky canoe, when it required the nicest balancing to keep the leak just above water; a movement of a hair's breadth would send all to the bottom, but they managed to cross in safety. They are especially careful when they have strangers under their charge, and it is the custom of Brazilian and Portuguese travellers to leave the whole management to them. When they are alone they are more reckless, and often have to swim for their lives. If a squall overtakes them as they are crossing in a heavily-laden canoe, they all jump overboard and swim about until the heavy sea subsides, when they re-embark.

## IV

A few words on the native population of the Pará estuary will here not be out of place. All the coast tribes were far more advanced in civilisation, and milder in their manners, than the savages who inhabited the interior lands of Brazil. They were settled in villages, and addicted to agriculture. They navigated the rivers in large canoes, made of immense hollowed-out tree trunks; in these they used to go to war, carrying in the prows their trophies and calabash rattles, whose clatter was meant to intimidate their enemies. They were gentle, and received the early Portuguese settlers with great friendliness. The inland savages, on the other hand, led a wandering life, as they do at the present time, only coming down occasionally to rob the plantations of the coast tribes, who always entertained the greatest enmity towards them.

The civilised Indian of Pará does not differ much from the Indian of the interior. He is more stoutly built, being better fed than some of them; but in this respect there are great differences amongst the tribes themselves. He presents all the chief characteristics of the American red man. The skin of a coppery brown colour, the features of the face broad, and the hair black, thick, and straight. He is generally about the middle height, thick-set, has a broad muscular chest, well-shaped but somewhat thick legs and arms, and small hands and feet. The cheek bones are not generally promi-



nent; the eyes are black, and seldom oblique like those of the Tartar races of Eastern Asia, which are supposed to have sprung from the same original stock as the American red man. They never betray, in fact they do not feel keenly, the emotions of joy, grief, wonder, fear, and so forth. They can never be excited to enthusiasm; but they have strong affections, especially those connected with family.

All the actions of the Indian show that his ruling desire is to be let alone; he is attached to his home, his quiet, monotonous forest and river life; he likes to go to towns occasionally, to see the wonders introduced by the white man, but he has a great repugnance to living in the midst of the crowd; he prefers handicraft to field labour, and especially dislikes binding himself to regular labour for hire. He is shy and uneasy before strangers, but if they visit his abode, he treats them well, for he has a rooted appreciation of the duty of hospitality; there is a pride about him, and being naturally formal and polite, he acts the host with great dignity. He withdraws from towns as soon as the stir of civilisation begins to make itself felt. When we first arrived at Pará many Indian families resided there, for the mode of living at that time was more like that of a large village than a city; but as soon as river steamers and more business activity were introduced, they all gradually took themselves away.

Formerly the Indian was harshly treated, and even now he is so in many parts of the interior.

But, according to the laws of Brazil, he is a free citizen, having equal privileges with the whites; and there are very strong laws providing against the enslaving and ill-treatment of the Indians. The residents of the interior cannot comprehend why they are not allowed to compel Indians to work for them, seeing that they will not do it of their own accord. In the Pará district, the Indians are no longer enslaved, but they are deprived of their lands, and this they feel bitterly, as one of them, an industrious and worthy man, related to me.

On our second visit to the mills, we stayed ten days. There is a large reservoir and also a natural lake near the place, both containing aquatic plants, whose leaves rest on the surface like our water-lilies. On the banks of these pools grow quantities of a species of fan-leaved palm tree, whose stems are surrounded by whorls of strong spines. I sometimes took a canoe, and paddled myself alone down the creek. One day I got upset, and had to land on a grassy slope leading to an old plantation, where I ran about naked whilst my clothes were being dried on a bush.

The creek is not so picturesque as many others which I subsequently explored. Towards the Magoary the banks at the edge of the water are clothed with mangrove bushes, and beneath them the muddy banks swarm with crabs. On the lower branches a beautiful bird is found. This is a small heron of exquisitely graceful shape and mien; its plumage is minutely variegated with bars

and spots of many colours, like the wings of certain kinds of moths. It is difficult to see the bird in the woods, on account of its sombre colours, and the shadiness of its dwelling-places ; but its note, a soft, long-drawn whistle, often betrays its hiding-place. I was told by the Indians that it builds in trees, and that the nest, which is made of clay, is beautifully constructed. It is a favourite pet-bird of the Brazilians, who call it peacock.

I often had opportunities of observing its habits. It soon becomes tame, and walks about the floors of houses picking up scraps of food, or catching insects, which it secures by walking gently to the place where they settle, and spearing them with its long, slender beak. It allows itself to be handled by children, and will answer to its name “Pavao ! Pavao !” walking up with a dainty gait, and taking a fly or beetle from the hand.

## CHAPTER III

### THE LOWER AMAZONS (OBYDOS TO MANÁOS OR BARRA)

Departure from Obydos—River Banks and By-channels—Cacao Planters—Daily Life on Board our Vessel—Great Storm—Sand-island and its Birds—Negro Trader and Indians—Villa Nova, its Inhabitants, Forest, and Animal Productions—A rustic Festival—Christmas Holidays—River Madeira—A Mameluco Farmer—Rio Negro—Description of Barra—From Barra to Ega.

#### I

A TRADER of Obydos, named Penna, was about to proceed in a two-masted trader's vessel laden with merchandise to the Rio Negro, intending to stop frequently on the road; so I bargained with him for a passage. He gave up a part of the fore-cabin, and here I slung my hammock and arranged my boxes, so as to be able to work as we went along. The stoppages I thought would be an advantage, as I could collect in the woods whilst he traded, and thus acquire a knowledge of the productions of many places on the river, which in a direct voyage it would be impossible to do. I provided a stock of groceries for two months' consumption; and, after the usual amount of fuss and delay on the part of the owner, we started on the 19th of November. Penna took his family with him: this

comprised a smart, lively mameluco woman, called Katita, and two children. The crew consisted of three men, one a sturdy Indian, another a Cafuzo, godson of Penna, and the third, our best hand, a steady, good-natured mulatto, named Joaquim. My boy Luco was to assist in rowing and so forth.

Penna was a timid middle-aged man, a white with a slight cross of Indian; when he was surly and obstinate, he used to ask me to excuse him on account of the Indian blood in his veins. He tried to make me as comfortable as possible, and provided a large stock of eatables and drinkables; so that altogether the voyage promised to be a pleasant one.

On leaving the port of Obydos we crossed over to the right bank, and sailed with a light wind all day, passing numerous houses, each surrounded by its grove of cacao (cocoa) trees. We landed at one of the cacao plantations. The house was substantially built; the walls formed of strong upright posts, lathed across, plastered with mud and white-washed, and the roof tiled. The family were mamelucos, and seemed to be an average sample of the poorer class of cacao growers. All were loosely dressed and barefooted. A broad verandah extended along one side of the house, the floor of which was simply the well-trodden earth; and here hammocks were slung between the bare upright supports, a large rush mat being spread on the ground, upon which the stout matron-like mistress, with a tame parrot perched upon her shoulder, sat sewing with two pretty little mulatto girls.

The master, coolly clad in shirt and drawers, the former loose about the neck, lay in his hammock smoking a long, gaudily-painted wooden pipe. The household utensils, earthenware jars, water-pots, and saucepans, lay at one end, near which was a wood fire, with the ever-ready coffee-pot simmering on the top of a clay tripod. A large shed stood a short distance off, embowered in a grove of banana, papaw, and mango trees; and under it were the ovens, troughs, sieves, and all other apparatus for the preparation of mandioca (tapioca).

The cleared space around the house was only a few yards in extent; beyond it lay the cacao plantations, which stretched on each side parallel to the banks of the river. There was a path through the forest which led to the mandioca fields, and several miles beyond to other houses on the banks of an interior channel. We were kindly received, as is always the case when a stranger visits these out-of-the-way habitations; the people being always civil and hospitable. We had a long chat, took coffee, and on departing one of the daughters sent a basket full of oranges for our use down to the canoe.

The forest here is cleared before planting, and the trees are grown in rows. The smaller cultivators are all very poor. Labour is scarce; one family generally manages its own small plantation of 10,000 to 15,000 trees, but at the harvest time neighbours assist each other. It appeared to me to be an easy, pleasant life; the work is all done under shade, and occupies only a few weeks in the



year. The laziness of the people alone prevents them from surrounding themselves with all the luxuries of a tropical country. They might plant orchards of the choicest fruit trees around their houses, grow Indian corn, and rear cattle and hogs, as intelligent settlers from Europe would certainly do—instead of indolently relying solely on the produce of their small plantations, and living on a meagre diet of fish and farinha (meal).

In preparing the cacao they have not devised any means of separating the seeds well from the pulp, or drying it in a systematic way; so it moulds before reaching the merchants' stores, and does not fetch more than half the price of the same article grown in other parts of tropical America.

The Amazons region is the original home of the principal species of chocolate tree, and it grows in abundance in the forests of the upper river. Little or no care is bestowed on the trees, and even weeding is done very inefficiently. The plantations are generally old, and have been made on the low ground near the river, which renders them liable to inundation when this rises a few inches more than the average. There is plenty of higher land quite suitable to the tree, but it is uncleared, and the want of labour and enterprise prevents the establishment of new plantations.

We passed the last houses in the Obydos district on the 20th, and the river scenery then resumed its usual wild and solitary character, which the scattered human habitations relieved, although in



RIVER SCENE NEAR OBYDOS

a small degree. We soon fell into a regular mode of life on board our little ark. Penna would not travel by night; indeed, our small crew, wearied by the day's labour, required rest, and we very rarely had wind in the night. We used to moor the vessel to a tree, giving out plenty of cable, so as to sleep at a distance from the banks and free of mosquitoes, which, although swarming in the forest, rarely came many yards out into the river at this season of the year.

We all slept in the open air, as the heat of the cabins was stifling in the early part of the night. Penna, Katita, and I slung our hammocks in triangle between the mainmast and two stout poles fixed in the raised deck. A sheet was the only covering required, besides our regular clothing; for the decrease of temperature at night on the Amazons is never so great as to be felt otherwise than as a delightful coolness after the sweltering heat of the afternoon. We used to rise when the first gleam of dawn showed itself above the long, dark line of forest. Our clothes and hammocks were then generally soaked with dew, but this was not felt to be an inconvenience.

The Indian Manoel used to revive himself by a plunge in the river, under the bows of the vessel. It is the habit of all Indians, male and female, to bathe early in the morning; they do it sometimes for warmth's sake, the temperature of the water being often considerably higher than that of the air. Penna and I lolled in our hammocks, whilst Katita prepared the indispensable cup of strong coffee,

which she did with wonderful celerity, smoking meanwhile her early morning pipe of tobacco. Liberal owners of river craft allow a cup of coffee, sweetened with molasses, to each man of their crews. When all were served, the day's work began.

There was seldom any wind at this early hour; so if there was still water along the shore the men rowed. In some places the currents ran with great force close to the banks, especially where these receded to form long bays, and then we made very little headway. In such places the banks consist of loose earth, a rich crumbly vegetable mould supporting a growth of most luxuriant forest, of which the currents almost daily carry away large portions, so that the stream for several yards out is encumbered with fallen trees, whose branches quiver in the current. There generally sprung a light wind as the day advanced, and then we took down our hammocks, hoisted all sail, and bowled away merrily. Penna generally preferred to cook the dinner ashore, when there was little or no wind.

About midday on these calm days we used to look out for a nice shady nook in the forest, with cleared space sufficient to make a fire upon. I then had an hour's hunting in the neighbouring wilderness, and was always rewarded by the discovery of some new species. During the greater part of our voyage, however, we stopped at the house of some settler, and made our fire in the port. Just before dinner it was our habit to take a bath in the

river, and then we set to on our mess of stewed pirarucú, beans, and bacon. Once or twice a week we had fowls and rice; at supper, after sunset, we often had fresh fish caught by our men in the evening.

The mornings were cool and pleasant until towards midday; but in the afternoons the heat became almost intolerable, especially in gleamy, squally weather, such as generally prevailed. We then crouched in the shade of the sails, or went down to our hammocks in the cabin, choosing to be half stifled rather than expose ourselves on deck to the sickening heat of the sun. We generally ceased travelling about nine o'clock, fixing upon a safe spot wherein to secure the vessel for the night. The cool evening hours were delicious; flocks of whistling ducks, parrots, and hoarsely-screaming macaws, pair by pair, flew over from their feeding to their resting-places, as the glowing sun plunged abruptly beneath the horizon.

The brief evening chorus of animals then began, the chief performers being the howling monkeys, whose frightful unearthly roar deepened the feeling of solitude which crept on as darkness closed around us. Soon after, the fireflies in great diversity of species came forth and flitted about the trees. As night advanced, all became silent in the forest, save the occasional hooting of tree-frogs, or the monotonous chirping of wood-crickets and grasshoppers.

We made but little progress on the 20th and two following days, on account of the unsteadiness of the wind. The dry season had been of very brief

duration this year; it generally lasts in this part of the Amazons from July to January, with a short interval of showery weather in November. The river ought to sink thirty or thirty-five feet below its highest point; this year it had declined only about twenty-five feet, and the November rains threatened to be continuous. The drier the weather the stronger blows the east wind; it now failed us altogether, or blew gently for a few hours merely in the afternoons. I had hitherto seen the great river only in its sunniest aspect; I was now about to witness what it could furnish in the way of storms.

On the night of the 22nd the moon appeared with a misty halo. As we went to rest, a fresh watery wind was blowing, and a dark pile of clouds gathering up river in a direction opposite to that of the wind. I thought this betokened nothing more than a heavy rain which would send us all in a hurry to our cabins. The men moored the vessel to a tree alongside a hard clayey bank, and after supper all were soon fast asleep, scattered about the raised deck. About eleven o'clock I was awakened by a horrible uproar, as a hurricane of wind suddenly swept over from the opposite shore. The vessel was hurled with force against the clayey bank; Penna shouted out, as he started to his legs, that a squall from up river was upon us. We took down our hammocks, and then all hands were required to save the vessel from being dashed to pieces.

The moon set, and a black pall of clouds spread itself over the dark forests and river; a frightful



crack of thunder now burst over our heads, and down fell the drenching rain. Joaquim leapt ashore through the drowning spray with a strong pole, and tried to pass the vessel round a small projecting point, whilst we on deck aided in keeping her off and lengthened the cable. We succeeded in getting free, and the stout-built boat fell off into the strong current farther away from the shore, Joaquim swinging himself dexterously aboard by the bowsprit as it passed the point. It was fortunate for us that he happened to be on a sloping clayey bank, where there was no fear of falling trees; a few yards farther on, where the shore was perpendicular and formed of crumbly earth, large portions of loose soil, with their mass of forest, were being washed away; the uproar thus occasioned adding to the horrors of the storm.

The violence of the wind abated in the course of an hour, but the deluge of rain continued until about three o'clock in the morning; the sky being lighted up by almost incessant flashes of pallid lightning, and the thunder pealing from side to side without interruption. Our clothing, hammocks, and goods were thoroughly soaked by the streams of water which trickled through between the planks. In the morning all was quiet; but an opaque leaden mass of clouds overspread the sky, throwing a gloom over the wild landscape that had a most dispiriting effect. These squalls from the west are always expected about the time of the breaking up of the dry season in these central parts of the Lower Amazons. They generally take place about

the beginning of February, so that this year they had commenced much earlier than usual.

The soil and climate are much drier in this part of the country than in the region lying farther to the west, where the denser forests and more clayey, humid soil produce a considerably cooler atmosphere. The storms may be therefore attributed to the rush of cold moist air from up river, when the regular trade-wind coming from the sea has slackened or ceased to blow.

On the 26th we arrived at a large sandbank connected with an island in mid-river, in front of an inlet. Here we anchored and spent half a day ashore. Penna's object in stopping was simply to enjoy a ramble on the sands with the children, and give Katita an opportunity to wash the linen. The sandbank was now fast going under water with the rise of the river; in the middle of the dry season it is about a mile long and half a mile in width. The canoe-men delight in these open spaces, which are a great relief to the monotony of the forest that clothes the land in every other part of the river. Farther westward they are much more frequent, and of larger extent. They lie generally at the upper end of islands; in fact, the latter are formed of the vegetable matter made by plants and trees growing on a shoal.

In wandering about, many features reminded me of the seashore. Flocks of white gulls were flying overhead, uttering their well-known cry, and sand-pipers coursed along the edge of the water. Here and there lonely wading-birds were stalking about;

one of these flew up with a low cackling noise, and was soon joined by an unicorn bird, which I startled up from amidst the bushes, whose harsh screams, resembling the bray of a jackass, but shriller, disturbed unpleasantly the solitude of the place. Amongst the willow bushes were flocks of a handsome bird, adorned with a rich plumage of black and saffron-yellow. I spent some time watching an assemblage of a species of bird which has a plain slate-coloured plumage with the beak of an orange hue. They remain seated sometimes for hours together on low branches in the shade, and are stimulated to exertion only when attracted by passing insects. This flock of birds were the reverse of dull; they were gambolling and chasing each other amongst the branches. As they sported about, each emitted a few short tuneful notes, which altogether produced a ringing, musical chorus that quite surprised me.

On the 27th we reached an elevated wooded promontory, which now forms the boundary between the provinces of Pará and the Amazons. Here we met a small canoe. The owner was a free negro named Lima, who, with his wife, was going down the river to exchange his year's crop of tobacco for European merchandise. The long shallow canoe was laden nearly to the water level. He resided on the banks of a river at a distance of 180 miles. Penna offered him advantageous terms, so a bargain was struck, and the man saved his long journey. The negro seemed a frank, straightforward fellow. He had with him a little Indian girl, who

had not the slightest trace of the savage in her appearance. Her features were finely shaped, the cheek-bones not at all prominent, the lips thin, and the expression of her countenance frank and smiling. The Indians, as a general rule, are very manageable when they are young, but it is a general complaint that when they reach the age of puberty they become restless and discontented. The rooted impatience of all restraint then shows itself, and the kindest treatment will not prevent them running away from their masters; they do not return to their tribes, but join parties who go out to collect the produce of the forests and rivers, and lead a wandering, semi-savage kind of life.

We remained under the promontory all night. Early the next morning a light mist hung about the tree-tops, and the forest resounded with the yelping of monkeys. I went ashore with my gun and got a glimpse of the flock, but did not succeed in obtaining a specimen. They were of small size and covered with long fur of a uniform grey colour. The forest was extremely varied, and inextricable coils of woody climbers stretched from tree to tree. Thongs of cacti were spread over the rocks and tree-trunks. The variety of small, beautifully-shaped ferns and lichens made the place quite a museum of plants of that kind. I found here two exquisite species of beetles, and a large kind of grasshopper, whose broad fore-wings resembled the leaf of a plant, providing the insect with a perfect disguise when they were closed; whilst the hind-wings were decorated with gaily-coloured eye-like spots.

The negro left us and turned up a narrow channel, the "little river of the branches," on the road to his home. We then continued our voyage, and in the evening arrived at Villa Nova, a straggling village containing about seventy houses, many of which scarcely deserve the name,



LEAF-LIKE GRASSHOPPER

being mere mud-huts roofed with palm-leaves. We stayed here four days. As soon as we anchored I set off with Luco to explore the district. We walked about a mile along the marly shore, on which was a thick carpet of flowering shrubs, enlivened by a great variety of lovely little butterflies, and then entered the forest by a dry watercourse. About a furlong inland this opened on a broad placid pool, whose banks, clothed with grass of the softest

green hue, sloped gently from the water's edge to the compact wall of forest which encompassed the whole. The pool swarmed with water-fowl; snowy egrets, dark-coloured striped herons, and storks of various species standing in rows around its margins. Small flocks of macaws were stirring about the topmost branches of the trees.

In the bushes on the margin of the pool were great numbers of a kind of canary, of a greenish-yellow colour, which has a short and not very melodious song. We had advanced but a few steps when we startled a pair of powerful birds of the stork family, four and a half feet in height, which flew up and alarmed the rest, so that I got only one bird out of the tumultuous flocks which passed over our heads. Passing towards the farther end of the pool, I saw resting on the surface of the water, a number of large round leaves, turned up at their edges; they belonged to the *Victoria* water-lily. The leaves were just beginning to expand (December 3rd), some were still under water, and the largest of those which had reached the surface measured not quite three feet in diameter.

We found a canoe with a paddle in it, drawn up on the bank, which I took leave to borrow of the unknown owner, and Luco paddled me amongst the noble plants to search for flowers, meeting, however, with no success. We saw many kinds of hawks and eagles, one of which, a black species, sat on the top of a tall naked stump, uttering its whining notes. This eagle is considered a bird of ill omen by the Indians; it often perches on the



tops of trees in the neighbourhood of their huts, and is then said to bring a warning of death to some member of the household. Others say that its whining cry is intended to attract other defenceless birds within its reach. The little courageous flycatcher assembles in companies of four or five, and attacks it boldly, driving it from the perch where it would otherwise sit for hours. I shot three hawks of as many different species; and these, with a stork, two beautiful gilded-green jacamars, and half-a-dozen leaves of the water-lily, made a heavy load, with which we trudged off back to the canoe.

## II

We left Villa Nova on the 4th of December. A light wind on the 5th carried us across to the opposite shore and past the mouth of the "little river of the bow," so called on account of its being a short arm of the main river, of a curved shape. On the 6th, after passing a large island in mid-river, we arrived at some perpendicular clay cliffs. A little below these cliffs were a few settlers' houses: here Penna remained ten days to trade, a delay which I turned to good account in augmenting very considerably my collections.

At the first house a festival was going forward. We anchored at some distance from the shore, on account of the water being shoaly, and early in the morning three canoes put off, laden with salt fish, oil, fowls, and bananas, wares which the

owners wished to exchange for different articles required for the festival. Soon after I went ashore. The head man was a tall, well-made, civilised Indian, named Marcellino, who, with his wife, a thin, active, wiry old squaw, did the honours of their house, I thought, admirably. The company consisted of fifty or sixty Indians and *mamelucos*. The festival was in honour of our Lady of Conception; and when the people learnt that Penna had on board an image of the saint handsomer than their own, they put off in their canoes to borrow it; Marcellino taking charge of it, covering it carefully with a neatly-bordered white towel. On landing with the image, a procession was formed from the port to the house, and salutes fired from a couple of guns, the saint being afterwards carefully deposited in the family chapel.

After a litany and hymn were sung in the evening, all assembled to supper around a large mat spread on a smooth terrace-like space in front of the house. The meal consisted of a large boiled *pirarucú*, which had been harpooned for the purpose in the morning, stewed and roasted turtle, piles of *mandioca*-meal, and bananas. The old lady, with two girls, showed the greatest activity in waiting on the guests, Marcellino standing gravely by, observing what was wanted and giving the necessary orders to his wife. When all was done, hard drinking began, and soon after there was a dance, to which Penna and I were invited. The liquor served was chiefly a spirit distilled by the people

themselves from mandioca cakes. The music was supplied by a couple of wire-stringed guitars, played alternately by the young men. All passed off very quietly considering the amount of strong liquor drunk, and the ball was kept up until sunrise the next morning.

We visited all the houses one after the other. One of them was situated in a charming spot, with a broad sandy beach before it, at the entrance to a channel leading to an interior lake, peopled by savages of the Múra tribe. This seemed to be the abode of an industrious family, but all the men were absent, salting pirarucú on the lakes. The house, like its neighbours, was simply a framework of poles thatched with palm-leaves, the walls roughly latticed and plastered with mud: but it was larger, and much cleaner inside than the others. It was full of women and children, who were busy all day with their various employments; some weaving hammocks in a large clumsy frame, which held the warp whilst the shuttle was passed by the hand slowly across the six feet breadth of web; others spinning cotton, and others again scraping, pressing, and roasting mandioca.

The family had cleared and cultivated a large piece of ground; the soil was of extraordinary richness, the perpendicular banks of the river, near the house, revealing a depth of many feet of crumbling vegetable mould. There was a large plantation of tobacco, besides the usual patches of Indian-corn, sugar-cane, and mandioca; and a grove of cotton, cacao, coffee, and fruit trees, surrounded

the house. We passed two nights at anchor in shoaly water off the beach. The weather was most beautiful, and scores of dolphins rolled and snorted about the canoe all night.

We crossed the river at this point, and entered a narrow channel which penetrates the interior of an island, and leads to a chain of lakes. A furious current swept along the coast, eating into the crumbling earthy banks, and strewing the river with *débris* of the forest. The mouth of the channel lies about twenty-five miles from Villa Nova; the entrance is only about forty yards broad, but it expands, a short distance inland, into a large sheet of water.

We suffered terribly from insect pests during the twenty-four hours we remained here. At night it was quite impossible to sleep for mosquitoes; they fell upon us by myriads, and without much piping came straight at our faces as thick as raindrops in a shower. The men crowded into the cabins, and then tried to expel the pests by the smoke from burnt rags, but it was of little avail, although we were half suffocated during the operation. In the daytime a fly, much larger and more formidable than the mosquito, insisted upon levying his tax of blood. We had been tormented by it for many days past, but this place seemed to be its headquarters.

It is closely related to a brown fly which haunts the borders of woods in summer time in England. It is of a bronzed-black colour; its proboscis is formed of a bundle of horny lancets, which are shorter and broader than is usually the

case in the family to which it belongs. Its prick does not produce much pain, but it makes such a large gash in the flesh that the blood trickles forth in little streams. Many scores of them were flying about the canoe all day, and sometimes eight or ten would settle on one's ankles at the same time. It is sluggish in its motions, and may be easily killed with the fingers when it settles.



THE PACA. (Cory or Guinea-pig.)

Alligators were common on most parts of this coast; in some places we saw also small herds of a large animal like a colossal guinea-pig amongst the rank herbage on muddy banks, and now and then flocks of the graceful squirrel monkey were seen taking flying leaps from tree to tree. On the 22nd we passed the mouth of the most easterly of the numerous channels which lead to a large interior lake, and on the 23rd threaded a series of passages between islands, where we again saw human habi-

tations, ninety miles distant from the last house. On the 24th we arrived at Serpa.

Serpa is a small village, consisting of about eighty houses, built on a bank elevated twenty-five feet above the level of the river. It is an old settlement and was once the seat of the district government. It was in 1849 a wretched-looking village, but it has since revived, on account of having been chosen by the Steamboat Company of the Amazons as a station for steam saw-mills and tile manufactories.

We arrived on Christmas-eve, when the village presented an animated appearance from the number of people congregated for the holidays. The port was full of canoes, large and small—including the two-masted vessel of the peddling trader, who had resorted to the place in the hope of trafficking with settlers coming from remote places to attend the festival. We anchored close to a canoe, whose owner was an old Indian, disfigured by a large black tattooed patch in the middle of his face, and by his hair being close cropped, except a fringe in front of the head. In the afternoon we went ashore.

The population seemed to consist chiefly of semi-civilised Indians, living as usual in half-finished mud hovels. The streets were irregularly laid out, and overrun with weeds and bushes swarming with a very minute scarlet mite or tick, which sweeps off to one's clothes in passing, and attaching itself in great numbers to the skin causes a most disagreeable itching. The few whites and better class of residents live in more substantial dwellings, white-washed and



tilled. All, both men and women, seemed to me much more cordial, and at the same time more brusque in their manners, than any Brazilians I had yet met with. One of them I knew for a long time afterwards; a lively, intelligent, and thoroughly good-hearted man, who had quite a reputation throughout the interior of the country for generosity, and for being a firm friend of foreign residents and stray travellers. Some of these excellent people were men of substance, being owners of trading vessels, slaves, and extensive plantations of cacao and tobacco.

We stayed at Serpa five days. Some of the ceremonies observed at Christmas were interesting, inasmuch as they were the same as those taught by the Jesuit missionaries more than a century ago to the tribes whom they had induced to settle on this spot. In the morning all the women and girls, dressed in white gauze chemises and showy calico print petticoats, went in procession to church, first going the round of the town to take up the different stewards. These stewards carried each a long white reed, decorated with coloured ribbons; several children also accompanied, grotesquely decked with finery. Three old squaws went in front, holding a large semicircular frame, clothed with cotton and studded with ornaments, bits of looking-glass, and so forth. This they danced up and down, singing all the time a whining hymn in the native language, and at frequent intervals turning round to face the followers, who then all stopped for a few moments. I was told that this was a device adopted by the Jesuits to attract the

savages to church, for these everywhere followed the mirrors, in which they saw (as it were magically reflected) their own persons.

In the evening good-humoured revelry prevailed on all sides. The negroes, who had a saint of their own colour, had their holiday apart from the rest, and spent the whole night singing and dancing to the music of a long drum and a tube. The drum was a hollow log, having one end covered with skin, and was played by the performer sitting astride upon it and drumming with his knuckles. The notched bamboo tube produces a harsh rattling noise by passing a hard stick over the notches. Nothing could exceed in dreary monotony this music and the singing and dancing, which were kept up with unflagging vigour all night long. The Indians did not get up a dance; for the whites and mamelucos had invited all the pretty coloured girls for their own ball, and the older squaws preferred looking on to taking a part themselves. Some of their husbands joined the negroes, and got drunk very quickly. The negroes and Indians excused their own intemperance by saying the whites were getting drunk at the other end of the town, which was quite true.

We left Serpa on the 29th of December, in company of an old planter named John Trinitade; at whose station, situated opposite the mouth of the Madeira, Penna intended to spend a few days. Our course on the 29th and 30th lay through narrow channels between islands. On the 31st we passed the last of these, and then beheld to the south a sea-like expanse of water, where the Madeira, the

RAPIDS ON THE MADEIRA



greatest tributary of the Amazons, after 2000 miles of course, blends its waters with those of the king of rivers.

I was hardly prepared for a junction of waters on so vast a scale as this, now nearly 900 miles from the sea. Whilst travelling week after week along the somewhat monotonous stream, often hemmed in between islands, and becoming thoroughly familiar with it, my sense of the magnitude of this vast water system had become gradually deadened; but this noble sight renewed the first feelings of wonder. One is inclined, in such places as these, to think the people of Pará do not exaggerate much when they call the Amazons the Mediterranean of South America. Beyond the mouth of the Madeira, the Amazons sweeps down in a majestic reach, to all appearance not a whit less in breadth before than after this enormous addition to its waters.

A few items of information which I gleaned relative to this river may find a place here. The Madeira is navigable for about 480 miles from its mouth; a series of cataracts and rapids then commences, which extends, with some intervals of quiet water, about 160 miles, beyond which is another long stretch of navigable stream. It was explored by the Portuguese in the early part of the eighteenth century; the chief and now the only town on its banks, Borba, 150 miles from its mouth, being founded in 1756. Up to the year 1853, the lower part of the river, as far as about a hundred miles beyond Borba, was regularly

visited by traders, to collect sarsaparilla, balsam, turtle-oil, and to trade with the Indians, with whom their relations were generally on a friendly footing. In that year many india-rubber collectors resorted to this region, stimulated by the high price (2*s.* 6*d.* a pound) which the article was at that time fetching at Pará.

Then the Araras, a fierce and intractable tribe of Indians, began to be troublesome. They attacked several canoes and massacred every one on board, the Indian crews as well as the white traders. Their plan was to lurk in ambush near the sandy beaches where canoes stop for the night, and then fall upon the people whilst asleep. Sometimes they came under pretence of wishing to trade, and then as soon as they could get the trader at a disadvantage shot him and his crew from behind trees. Their arms were clubs, bows, and certain arrows, the latter a formidable weapon tipped with a piece of flinty bamboo shaped like a spearhead; they could propel it with such force as to pierce a man completely through the body. This state of things lasted two or three years, and made a journey up the Madeira a risky undertaking, as the savages attacked all comers.

The Araras are one of those tribes which do not plant mandioca; and indeed have no settled habitations. They paint their chins red, and have usually a black tattooed streak on each side of the face, running from the corner of the mouth to the temple. They have not yet learnt the use of firearms, have no canoes, and spend their lives roaming over the



A PORT ON THE MADEIRA



interior of the country, living on game and wild fruits. When they wish to cross a river, they make a temporary canoe with a thick bark of trees, which they secure in the required shape of a boat by means of lianas, or twining plants.

When the Indians show a hostile disposition to the whites, I believe it is most frequently owing to some provocation they have received at their hands; for the first impulse of the Brazilian red man is to respect Europeans; they have a strong dislike to be forced into their service, but if strangers visit them with a friendly intention they are well treated. In 1855 I met with an American, who had lived for many years amongst the Indians on the Madeira. He told me his neighbours were a kindly disposed and cheerful people, and that the onslaught of the Araras was provoked by a trader, who wantonly fired into a family of them, killing the parents, and carrying off their children to be employed as domestic servants.

We remained nine days at the station of John Trinidad. It is situated on a tract of high land, which is raised, however, only a few inches above high-water mark. This skirts the northern shore for a long distance; the soil consisting of rich vegetable mould. Such districts are the first to be settled on in this country, and the whole coast for many miles was dotted with pleasant-looking places like that of our friend. The establishment was a large one, the house and out-buildings covering a large space of ground. The industrious proprietor seemed to be Jack-of-all-trades; he was

planter, trader, fisherman, and canoe-builder, and a large canoe was now on the stocks under a large shed.

There was great pleasure in contemplating this prosperous farm, from its being worked almost entirely by free labour; in fact, by one family, and its dependents. John Trinidad had only one female slave; among his other workpeople were a brother and sister-in-law, two godsons, a free negro, and one or two Indians. Both he and his wife were *mamelucos*; the negro children called them always father and mother. The order, abundance, and comfort about the place, showed what industry and good management could effect in this country without slave-labour.

But the surplus produce of such small plantations is very trifling. All we saw had been done since the disorders of 1835-6, during which John Trinidad was a great sufferer; he was obliged to fly, and the Indians destroyed his house and plantations. There was a large, well-weeded grove of cacao along the banks of the river, comprising about 8000 trees, and farther inland considerable plantations of tobacco, mandioca, Indian corn, fields of rice, melons, and water-melons. Near the house was a kitchen garden, in which grew cabbages and onions, introduced from Europe, besides a wonderful variety of tropical vegetables.

It must not be supposed that these plantations and gardens were enclosed or neatly kept, such is never the case in this country where labour is so scarce; but it was an unusual thing to see vegetables

grown at all, and the ground tolerably well weeded. The space around the house was plentifully planted with fruit trees, some yielding delicious fruits large as a child's head, and full of custardy pulp which it is necessary to eat with a spoon; besides oranges, lemons, alligator pears, and bananas. In the shade of these, coffee trees grew in great luxuriance. The table was always well supplied with fish, which the Indian who was attached to the household as fisherman caught every morning a few hundred yards from the port.

I thoroughly enjoyed the nine days we spent at this place. Our host and hostess took an interest in my

pursuit; one of the best chambers in the house was given up to me, and the young men took me long rambles in the neighbouring forests. I saw very little hard work going forward. Every one rose with the dawn, and went down to the river to bathe; then came the never-failing cup of rich and strong coffee, after which all proceeded to their callings.



CACAO

At this time, nothing was being done at the plantations; the cacao and tobacco crops were not ripe; weeding time was over, and the only work on foot was the preparation of a little meal by the women. The men dawdled about; went shooting and fishing, or did trifling jobs about the house. The only laborious work done during the year is the felling of timber for new clearings; this happens at the beginning of the dry season, namely, from July to September. Whatever employment the people were engaged in, they did not intermit it during the hot hours of the day. Those who went into the woods took their dinners with them—a small bag of meal and a slice of salt fish. About sunset all returned to the house; they then had their frugal suppers, and towards eight o'clock, after coming to ask a blessing of the head of the household, went off to their hammocks to sleep.

There was another visitor besides ourselves, a negro, whom John Trinitade introduced to me as his oldest and dearest friend, who had saved his life during the revolt of 1835. I have, unfortunately, forgotten his name; he was a freeman, and had a station of his own, situated about a day's journey from this. There was the same manly bearing about him that I had noticed with pleasure in many other free negroes; but his quiet, earnest manner showed him to be a superior man of his class.

He told me he had been intimate with our host for thirty years, and that a wry word had

never passed between them. At the commencement of the disorders of 1835 he got into the secret of a plot for assassinating his friend, hatched by some villains whose only cause of enmity was their owing him money and envying his prosperity. The negro, on obtaining this news, set off alone in a canoe on a six hours' journey in the dead of night, to warn his friend of the fate in store for him, and thus gave him time to fly. It was a pleasing sight to notice the cordiality of feeling and respect for each other shown by these two old men; for they used to spend hours together enjoying the cool breeze, seated under a shed which overlooked the broad river, and talking of old times. John Trinitade was famous for his tobacco and cigarettes, as he took great pains in preparing the envelope, which is formed of the inner bark of a tree, separated into thin papery layers.

It was very pleasant to roam in our host's cocoa plantation. The ground was clear of underwood, the trees were about thirty feet in height, and formed a dense shade. Two species of monkey frequented the trees, and I was told committed great depredations when the fruit was ripe. One of these is a most impudent thief; it destroys more than it eats by its random, hasty way of plucking and breaking the fruits, and when about to return to the forest, carries away all it can in its hands or under its arms. A variety of beautiful insects basked on the foliage, where stray gleams of sunlight glanced through the canopy of broad soft-green leaves, and numbers of an elegant, long-

legged tiger-beetle ran and flew about over the herbage.

We now continued our voyage along the northern shore. Many houses of settlers, built at a considerable elevation on the wooded heights, now enlivened the river banks. One of the first objects which here greeted us was a beautiful bird we had not hitherto met with, namely, the scarlet and black tanager, flocks of which were seen sporting about the trees on the edge of the water, their flame-coloured liveries lighting up the masses of dark-green foliage. The weather, from the 14th to the 18th, was wretched; it rained sometimes for twelve hours in succession, not heavily, but in a steady drizzle, such as we are familiar with in our English climate.

We landed at several places on the coast, Penna to trade as usual, and I to ramble in the forest in search of birds and insects. In one spot the wooded slope enclosed a very picturesque scene: a brook, flowing through a ravine in the high bank, fell in many little cascades to the broad river beneath, its margins decked out with an infinite variety of beautiful plants. Wild bananas arched over the water-course, and the trunks of the trees in its vicinity were clothed with large-leaved ferns.

Our progress now was most tediously slow, for the regular east wind had now entirely ceased, and the wind from up river, having taken its place, blew daily for a few hours dead against us. The weather was oppressively close, and every afternoon a squall arose, which, however, as it came



from the right quarter and blew for an hour or two, was very welcome.

We made acquaintance on this coast with a new insect pest, a minute fly, two thirds of a line in length, which here commences its reign, and continues henceforward as a terrible scourge along the upper river to the end of the navigation on the Amazons. It comes forth only by day, relieving the mosquito at sunrise with the greatest punctuality, and occurs only near the muddy shores of the stream, not one ever being found in the shade of the forest. In places where it is abundant, it accompanies canoes in such dense swarms as to resemble thin clouds of smoke. It made its appearance in this way the first day after we crossed the river. Before I was aware of the presence of flies, I felt a slight itching on my neck, wrist, and ankles, and, on looking for the cause, saw a number of tiny objects having a disgusting resemblance to lice, adhering to the skin.

On close examination, they are seen to be minute two-winged insects, with dark-coloured body and pale legs and wings, the latter closed length-wise over the back. They alight imperceptibly, and squatting close, fall at once to work; stretching forward their long front legs, which are in constant motion and seem to act as feelers, and then applying their short, broad snouts to the skin. Their abdomens soon become distended and red with blood, and then, their thirst satisfied, they slowly move off, sometimes so stupefied with their feast that they can scarcely fly. No

pain is felt whilst they are at work, but they each leave a small circular raised spot on the skin and a disagreeable irritation. The latter may be avoided in great measure by pressing out the blood which remains in the spot; but this is a troublesome task when one has several hundred punctures in the course of a day.

A brisk wind from the east sprang up early in the morning of the 22nd : we then hoisted all sail, and made for the mouth of the Rio Negro. On reaching the opposite shore, we found a remarkable change. All our insect pests had disappeared, as if by magic, even from the hold of the canoe : the turmoil of an agitated, swiftly-flowing river, and its torn, perpendicular, earthy banks, had given place to tranquil water and a coast indented with snug little bays, fringed with sloping sandy beaches. The low shore and vivid light green, endlessly-varied foliage, which prevailed on the south side of the Amazons, were exchanged for a hilly country, clothed with a sombre, rounded, and monotonous forest.

Our tedious voyage now approached its end; a light wind carried us gently along the coast to the city of Barra, which lies about seven or eight miles within the mouth of the river. We stopped for an hour in a clean little bay, to bathe and dress, before showing ourselves again among civilised people. The bottom was visible at a depth of six feet, the white sand taking a brownish tinge from the stained but clear water. In the evening I went ashore, and was kindly received

by a warm-hearted Italian, established here in a high position as merchant, who was the never-failing friend of stray travellers. He placed a couple of rooms at my disposal, and in a few hours I was comfortably settled in my new quarters, sixty-four days after leaving Obydos.

### III

The town of Barra (or Manáos) is built on a tract of elevated, but very uneven land, on the left bank of the Rio Negro, and contained, in 1850, about 3000 inhabitants. There was originally a small fort here, erected by the Portuguese to protect their slave-hunting expeditions amongst the numerous tribes of Indians which peopled the banks of the river. The most warlike of these were the *Manáos*, who were continually at war with the neighbouring tribes. In 1809, Barra became the chief town of the Rio Negro district; many Portuguese and Brazilians from other provinces then settled here; spacious houses were built, and it grew, in the course of thirty or forty years, to be, next to Santarem, the principal settlement on the banks of the Amazons. When the new province of the Amazons was established, in 1852, Barra was chosen as the capital, and was then invested with the appropriate name of the city of Manáos.

The situation of the town has many advantages; the climate is healthy; there are no insect pests; the soil is fertile and capable of growing all kinds of tropical produce (the coffee of the Rio Negro,



A THOUSAND MILES UP THE AMAZON! REGATTA DAY AT MANAOS

especially, being of very superior quality), and it is near the fork of two great navigable rivers. The imagination becomes excited when one reflects on the possible future of this place—situated near the centre of the equatorial part of South America, in the midst of a region *almost as large as Europe*, every inch of whose soil is of the most exuberant fertility, and having water communication on one side with the Atlantic, and on the other with the Spanish republics of Venezuela, Peru, etc. Barra is now the principal station for the lines of steamers which were established in 1853, and passengers and goods are transhipped here for the Solimoens and Peru. A steamer runs once a fortnight between Pará and Barra.

Barra was formerly a pleasant place of residence, but it is now in a most wretched plight, suffering from a chronic scarcity of the most necessary articles of food. The attention of the settlers was formerly devoted almost entirely to the collection of the produce of the forests and rivers; so agriculture was neglected, and now the neighbourhood does not produce even mandioca-meal sufficient for its own needs. Many of the most necessary articles of food, besides all luxuries, come from Portugal, England, and North America. A few bullocks are brought now and then from Obydos, 500 miles off, the nearest place where cattle are reared in any numbers, and these furnish at long intervals a supply of fresh beef, but this is generally all wanted by the families of government officials. Fowls, eggs, fresh fish, turtles, vegetables, and fruit

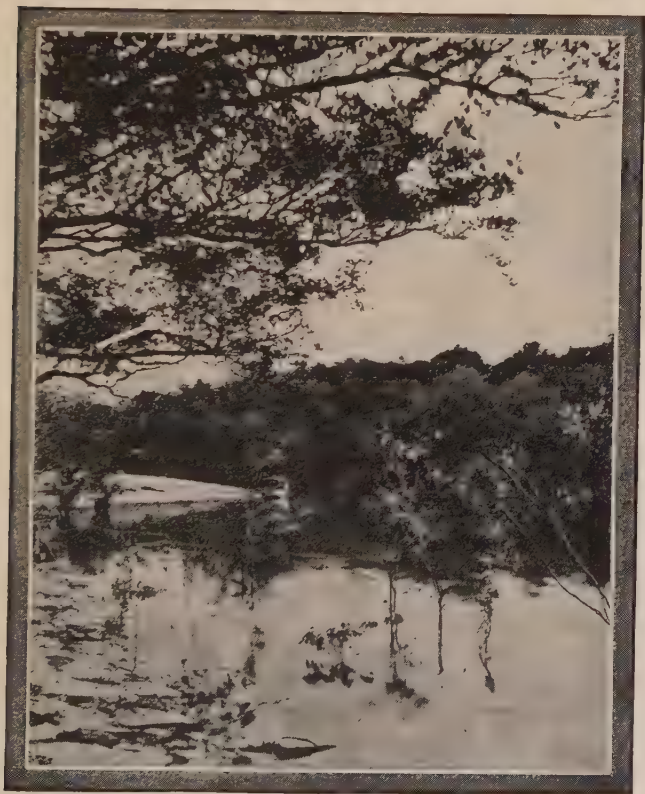
were excessively scarce and dear in 1859, when I again visited the place; for instance, six or seven shillings were asked for a poor lean fowl, and eggs were twopence-halfpenny apiece.

The class of Portuguese who emigrate to Brazil seem to prefer petty trading to the honourable pursuit of agriculture. If the English are a nation of shopkeepers, what are we to say of the Portuguese? I counted in Barra one store for every five dwelling-houses. These stores have often not more than fifty pounds' worth of goods for their whole stock, and the Portuguese owners, big lusty fellows, stand all day behind their dirty counters for the sake of selling a few coppers' worth of liquors, or small wares. These men all give the same excuse for not applying themselves to agriculture, namely, that no hands can be obtained to work on the soil. Nothing can be done with Indians; indeed, they are fast leaving the neighbourhood altogether, and the importation of negro slaves, in the present praiseworthy temper of the Brazilian mind, is out of the question. The problem, how to obtain a labouring class for a new and tropical country, without slavery, has to be solved before this glorious region can become what its delightful climate and great fertility fit it for—the abode of a numerous, civilised, and happy people.

I found at Barra my companion, Mr. Wallace, who had been busy exploring. He had passed us by night below Serpa, on his way to Barra, and so



had arrived about three weeks before me. Besides ourselves, there were half-a-dozen other foreigners



ON THE AMAZON, NEAR MANAÓS

here congregated,—Englishmen, Germans, and Americans; one of them a Natural History collector, the rest traders on the rivers. In the pleasant society of these, and of the family of the Italian,

we passed a delightful time ; the miseries of our long river voyages were soon forgotten, and in two or three weeks we began to talk of further explorations.

Meantime we had almost daily rambles in the neighbouring forest. The whole surface of the land down to the water's edge is covered by the uniform dark-green rolling forest, characteristic of the Rio Negro. This clothes also the extensive areas of lowland, which are flooded by the river in the rainy season. The olive-brown tinge of the water seems to be derived from the saturation in it of the dark-green foliage during these annual floods.

The forest was very pleasant for rambling. In some directions broad pathways led down gentle slopes, through what one might fancy were never-ending shrubberies of evergreens, to moist hollows where springs of water bubbled up, or shallow brooks ran over their beds of clean white sand. But the most beautiful road was one that ran through the heart of the forest to a waterfall, which the citizens of Barra consider as the chief natural curiosity of their neighbourhood. The waters of one of the larger rivulets which traverse the gloomy wilderness, here fall over a ledge of rock about ten feet high. It is not the cascade itself, but the noiseless solitude, and the marvellous richness of trees, foliage, and flowers, encircling the water basin, that form the attraction of the place. Families make picnic excursions to this spot ; and the gentlemen—it is said the ladies also—spend the sultry hours of midday bathing in the cold and bracing waters.

Birds and insects, however, were scarce amidst these charming sylvan scenes. I have often traversed the whole distance from Barra to the waterfall, about two miles by the forest road, without seeing or hearing a bird. In the thinner woods near the borders of the forest many pretty little blue and green insect creepers were daily seen feeding on berries; and a few very handsome birds occurred in the forest. But the latter were so rare that we could obtain them only by employing a native hunter, who used to spend a whole day, and go a great distance to obtain two or three specimens. In this way I obtained specimens of a most beautiful bird, having soft golden green plumage, red breast, and an orange-coloured beak; also a specimen of a rich glossy-purple chatterer with wings of a snowy-white hue.

After we had rested some weeks in Barra, we arranged our plans for further explorations in the interior of the country. Mr. Wallace chose the Rio Negro for his next trip, and I agreed to take the Upper Amazon. I left Barra for Ega, the first town of any importance on the Upper Amazon, on the 26th of March, 1850. The distance is nearly 400 miles, which we accomplished in a small trading vessel, manned by ten stout Indians, in thirty-five days. On this occasion I spent twelve months in the upper region of the Amazons; circumstances then compelled me to return to Pará. I revisited the same country in 1855, and devoted three years and a half to a fuller exploration of its natural productions.

## CHAPTER IV

### THE UPPER AMAZONS—EXCURSIONS IN THE NEIGHBOURHOOD OF EGA

Rambles through Groves on the Beach—Excursion to the House of an Indian Chieftain—Character and Customs of his Tribe—First Excursion to the Sand Islands of the Solimoens (or Upper Amazons)—Habits of Great River-turtle—Second Excursion—Turtle-fishing in the Inland Pools—Third Excursion—Hunting-rambles with Natives in the Forest—Return to Ega.

I WILL now proceed to give some account of the more interesting of my shorter excursions in the neighbourhood of Ega.

The settlement is built on a small tract of cleared land at the lower or eastern end of the lake, six or seven miles from the main Amazons, with which the lake communicates by a narrow channel.

The whole of the country for hundreds of miles is covered with picturesque but pathless forests, and there are only two roads along which excursions can be made by land from Ega. One is a narrow hunter's track, about two miles in length, which traverses the forest in the rear of the settlement. The other is an extremely pleasant path along the beach to the west of the town. This is practicable only in the dry season, when a flat strip of white sandy beach is exposed at the foot of the high wooded

banks of the lake, covered with trees, which, as there is no underwood, form a spacious shady grove.

I rambled daily, during many weeks of each successive dry season, along this delightful road. The trees, many of which are myrtles and wild guavas, with smooth yellow stems, were in flower at this time; and the rippling waters of the lake, under the cool shade, everywhere bordered the path. The place was the resort of kingfishers, green and blue tree-creepers, purple-headed tanagers, and humming-birds. Birds generally, however, were not numerous.

Every tree was tenanted by cicadas, the reedy notes of which produced that loud, jarring, insect music which is the general accompaniment of a woodland ramble in a hot climate. One species was very handsome, having wings adorned with patches of bright green and scarlet. It was very common; sometimes three or four tenanted a single tree, clinging as usual to the branches. On approaching a tree thus peopled, a number of little jets of a clear liquid would be seen squirted from aloft. I have often received the well-directed discharge full on my face; but the liquid is harmless, having a sweetish taste, and is ejected by the insect, probably in self-defence, or from fear.

The number and variety of gaily-tinted butterflies, sporting about in this grove on sunny days, were so great that the bright moving flakes of colour gave quite a character to the look of the place. It was impossible to walk far without

disturbing flocks of them from the damp sand at the edge of the water, where they congregated to imbibe the moisture. They were of almost all colours, sizes, and shapes : I noticed here altogether eighty species, belonging to twenty-two different classes. It is a singular fact that, with very few exceptions, all the individuals of these various species thus sporting in sunny places were of the male sex; their partners, which are much more soberly dressed and immensely less numerous than the males, being confined to the shades of the woods.

Every afternoon, as the sun was getting low, I used to notice these gaudy sunshine-loving swains trooping off to the forest, where I suppose they would find their sweethearts and wives. The most abundant, next to the very common sulphur-yellow and orange-coloured kinds, were about a dozen others of large size, conspicuous from their liveries of glossy dark-blue and purple. Another, a superbly-adorned creature, having wings of a thick texture, coloured sapphire-blue and orange, was only an occasional visitor. On certain days, when the weather was very calm, two small gilded-green species literally swarmed on the sands, their glittering wings lying wide open on the flat surface.

In all other directions my very numerous excursions were by water; the most interesting of those made in the immediate neighbourhood were to the houses of Indians on the banks of retired creeks; an account of one of these trips will suffice.



On the 23rd of May, 1850, I visited, in company with Antonio Cardozo, a family of the Passé tribe. The creek is more than a quarter of a mile broad near the town, but a few miles inland it gradually contracts, until it becomes a mere rivulet flowing



BLUE AND ORANGE BUTTERFLY. (Upper and under sides.)

through a broad dell in the forest. When the river rises it fills this dell; the trunks of the lofty trees then stand many feet deep in the water, and small canoes are able to travel the distance of a day's journey under the shade, regular paths or alleys being cut through the branches and lower trees.

This is the general character of the country for

the Upper Amazons; a land of small elevation and abruptly undulated, the hollows forming narrow valleys in the dry months, and deep navigable creeks in the wet months. In retired nooks on the margins of these shady rivulets, a few families or small hordes of aborigines still linger in nearly their primitive state, the remains of their once numerous tribes. The family we intended to visit on this trip was that of Pedro, or Tall Peter, an old chieftain of the *Passés*, an Indian tribe.

We set out at sunrise, in a small rowing boat, manned by six young Indian paddlers. After travelling about three miles along the broad portion of the creek—which, being surrounded by woods, had the appearance of a large pool—we came to a part where our course seemed to be stopped by an impenetrable hedge of trees and bushes. We were some time before finding the entrance, but when fairly within the shades, a remarkable scene presented itself. It was my first introduction to these singular water-paths.

A narrow and tolerably straight alley stretched away for a long distance before us; on each side were the tops of bushes and young trees, forming a kind of border to the path, and the trunks of the tall forest trees rose at irregular intervals from the water, their crowns interlocking far over our heads, and forming a thick shade. Slender air roots hung down in clusters, and looping climbing trees dangled from the lower branches; bunches of grass and ferns sat in the forks of the larger boughs, and the trunks of trees near the water had

adhering to them round dried masses of freshwater sponges. There was no current noticeable, and the water was stained of a dark olive-brown hue, but the submerged stems could be seen through it to a great depth.

We travelled at good speed for three hours along this shady road; the distance of Pedro's house from Ega being about twenty miles. When the paddlers rested for a time, the stillness and gloom of the place became almost painful: our voices waked dull echoes as we conversed, and the noise made by fishes occasionally whipping the surface of the water was quite startling. A cool, moist, clammy air pervaded the sunless shade.

The breadth of the wooded valley, at the commencement, is probably more than half a mile, and there is a tolerably clear view for a considerable distance on each side of the water-path through the trees: other paths also, in this part, branch off right and left from the principal road, leading to the scattered houses of Indians on the mainland. The dell contracts gradually towards the head of the rivulet, and the forest then becomes denser; the water-path also diminishes in width, and becomes more winding, on account of the closer growth of the trees. The boughs of some are stretched forth at no great height over one's head, and are seen to be loaded with air plants; one orchid I noticed particularly, on account of its bright yellow flowers growing at the end of flower-stems several feet long. Some of the trunks, especially those of palms, close beneath their

crowns, were clothed with a thick mass of glossy shield-shaped plants, mingled with ferns.

Arrived at this part, we were, in fact, in the heart of the virgin forest. We heard no noises of animals in the trees, and saw only one bird, the sky-blue chatterer, sitting alone on a high branch. For some distance, the lower vegetation was so dense that the road runs under an arcade of foliage, the branches having been cut away only sufficiently to admit of the passage of a small canoe. These thickets are formed chiefly of Bamboos, whose slender foliage and curving stems arrange themselves in elegant, feathery bowers : but other social plants,—slender green climbers with tendrils so eager in aspiring to grasp the higher boughs that they seem to be endowed almost with animal energy, and certain low trees having large elegantly-veined leaves, contribute also to the jungly masses. Occasionally we came upon an uprooted tree lying across the path, its huge crown still held up by thick cables of creepers, connecting it with standing trees : a wide circuit had to be made in these cases, and it was sometimes difficult to find the right path again.

At length we arrived at our journey's end. We were then in a very dense and gloomy part of the forest : we could see, however, the dry land on both sides of the creek, and to our right a small sunny opening appeared, the landing-place to the native dwellings. The water was deep close to the bank, and a clean pathway ascended from the shady port to the buildings, which were about a

furlong distant. My friend Cardozo was godfather to a grandchild of Pedro, whose daughter had married an Indian settled in Ega. He had sent word to the old man that he intended to visit him : we were therefore expected.

As we landed, Pedro himself came down to the port to receive us ; our arrival having been announced by the barking of dogs. He was a tall and thin old man, with a serious but kind expression of countenance, and a manner much freer from shyness and distrust than is usual with Indians. He was clad in a shirt of coarse dyed cotton cloth, and trousers of the same material turned up to the knee. His features were sharply delineated—more so than in any Indian face I had yet seen ; the lips thin and the nose rather high and compressed. A large, square, blue-black tattooed patch occupied the middle of his face, which, as well as the other exposed parts of his body, was of a light reddish-tan colour, instead of the usual coppery-brown hue. He walked with an upright, slow gait, and on reaching us saluted Cardozo with the air of a man who wished it to be understood that he was dealing with an equal. My friend introduced me, and I was welcomed in the same grave, ceremonious manner.

Arrived at the house, we were welcomed by Pedro's wife : a thin, wrinkled, active old squaw, tattooed in precisely the same way as her husband. She had also sharp features, but her manner was more cordial and quicker than that of her husband : she talked much, and with great inflection of voice ;

whilst the tones of the old man were rather drawling and querulous. Her clothing was a long petticoat of thick cotton cloth, and a very short chemise, not reaching to her waist.

I was rather surprised to find the grounds around this place in neater order than in any station, even of civilised people, I had yet seen on the Upper Amazons : the stock of utensils and household goods of all sorts was larger, and the evidences of regular industry and plenty more numerous than one usually perceives in the farms of civilised Indians and whites. The buildings were of the same construction as those of the humbler settlers in all other parts of the country. The family lived in a large, oblong, open shed built under the shade of trees. Two smaller buildings, detached from the shed and having mud-walls with low doorways, contained apparently the sleeping apartments of different members of the large household. A small mill for grinding sugar-cane, having two cylinders of hard notched wood ; wooden troughs, and kettles for boiling the cane juice, to make treacle, stood under a separate shed, and near it was a large enclosed mud-house for poultry.

There was another hut and shed a short distance off, inhabited by a family dependent on Pedro, and a narrow pathway through the luxuriant woods led to more dwellings of the same kind. There was an abundance of fruit trees around the place, including the never-failing banana, with its long, broad, soft green leaf-blades, and groups of full-grown peach palms. There was also a large number



of cotton and coffee trees. Amongst the utensils I noticed baskets of different shapes, made of flattened stalks, and dyed various colours. The making of these is an original art of the Passés, but I believe it is also practised by other tribes, for I saw several in the houses of semi-civilised Indians elsewhere.

There were only three persons in the house besides the old couple, the rest of the people being absent; several came in, however, in the course of the day. One was a daughter of Pedro's, who had an oval tattooed spot over her mouth; the second was a young grandson; and the third the son-in-law from Ega. The old woman was occupied, when we entered, in distilling spirits from an eatable root similar to the potato, by means of a clay still, which had been manufactured by herself. The liquor had a reddish tint, but not a very agreeable flavour. A cup of it, warm from the still, however, was welcome after our long journey. Cardozo liked it, emptied his cup, and replenished it in a very short time. The old lady was very talkative, and almost fussy in her desire to please her visitors.

We sat in hammocks, suspended between the upright posts of the shed. The young woman with the blue mouth—who, although married, was as shy as any young maiden of her race—soon became employed in scalding and plucking fowls for the dinner, near the fire on the ground at the other end of the dwelling.

I left them talking, and went a long ramble into the forest, Pedro sending his grandson, a smiling

well-behaved lad of about fourteen years of age, to show me the paths, my companion taking with him his blow-gun. This instrument is used by all the Indian tribes on the Upper Amazons. It is generally nine or ten feet long, and is made of two separate lengths of wood, each scooped out so as to form one-half of the tube. To do this with the necessary accuracy requires an enormous amount of patient labour, and considerable mechanical ability, the tools used being simply the incisor teeth of two animals. The two half tubes, when finished, are secured together by a very close and tight spirally-wound strapping, consisting of long flat strips of the wood of the climbing palm-tree; and the whole is smeared afterwards with black wax, the production of a bee. The pipe tapers towards the muzzle, and a cup-shaped mouthpiece, made of wood, is fitted in the broad end. A full-sized blow-gun is heavy, and can only be used by an adult Indian who has had great practice. The young lads learn to shoot with smaller and lighter tubes.



BLOW-GUN AND  
PALM-LEAF  
QUIVER, AND  
ARROWS

When Mr. Wallace and I had lessons in the use of the blow-gun of an Indian, then in the employ of Mr. Hauxwell, an English bird-collector, we

found it very difficult to hold steadily the long tubes. The arrows are made from the hard rind of the leaf-stalks of certain palms, thin strips being cut, and rendered as sharp as needles by scraping the ends with a knife or the tooth of an animal. They are winged with a little oval mass of silk (from the seed-vessels of the silk-cotton tree), cotton being too heavy. • The ball of silk should fit to a nicety the bore of the blow-gun; when it does so, the arrow can be propelled with such force by the breath that it makes a noise almost as loud as a pop-gun on flying from the muzzle. My little companion was armed with a quiver full of these little missiles, a small number of which, sufficient for the day's sport, were tipped with a fatal poison. The quiver was an ornamental affair, the broad rim being made of highly-polished wood of a rich cherry-red colour. The body was formed of neatly-plaited strips of stalks, and the belt by which it was suspended from the shoulder was decorated with cotton fringes and tassels.

We walked about two miles along a well-trodden pathway, through high forest. A large proportion of the trees bore a hairy yellow fruit, nearly as large and as well flavoured as our gooseberry. The season, however, was nearly over for them. The road was bordered every inch of the way by a thick bed of elegant moss-like plants. An artificial arrangement of trees and bushes could scarcely have been made to wear so finished an appearance as this naturally decorated avenue. The path at length terminated at a plantation of mandioca, the largest

I had yet seen since I left the neighbourhood of Pará. There were probably ten acres of cleared land, and part of the ground was planted with Indian corn, water-melons, and sugar-cane.

Beyond this field there was only a faint hunter's track, leading towards the untrodden interior. My companion told me he had never heard of there being any inhabitants in that direction (the south). We crossed the forest from this place to another smaller clearing, and then walked, on our road home, through about two miles of forest of various ages, the sites of old plantations.

The only fruits of our ramble were a few rare insects and a handsome bird with chestnut and saffron-coloured plumage, which wanders through the tree-tops in large flocks. My little companion brought this down from a height which I calculated at thirty yards. The blow-gun, however, in the hands of an expert adult Indian, can be made to propel arrows so as to kill at a distance of fifty and sixty yards. The aim is most certain when the tube is held vertically, or nearly so. It is a far more useful weapon in the forest than a gun, for the report of a firearm alarms the whole flock of birds or monkeys feeding on a tree, while the silent poisoned dart brings the animals down one by one until the sportsman has a heap of slain by his side. None but the stealthy Indian can use it effectively.

When we returned to the house after midday, Cardozo was still sipping his spirits, and now looked exceedingly merry. It was fearfully hot : the good

fellow sat in his hammock with a cup full of grog in his hands; his broad honest face all of a glow, and the perspiration streaming down his uncovered breast, the unbuttoned shirt having slipped half-way over his broad shoulders. Pedro had not drunk much; he was noted, as I afterwards learnt, for his temperance. But he was standing up as I had left him two hours previous, talking to Cardozo in the same monotonous tones, the conversation apparently not having flagged all the time. I had never heard so much talking amongst Indians.

The widower was asleep: the stirring, managing old lady and her daughter were preparing dinner. This, which was ready soon after I entered, consisted of boiled fowls and rice, seasoned with large green peppers and lemon juice, and piles of new, fragrant meal and raw bananas. It was served on plates of English manufacture on a large plaited rush mat, such as is made by the natives pretty generally on the Amazons. Three or four other Indians, men and women of middle age, now made their appearance; and joined in the meal. We all sat round on the floor: the women, according to custom, not eating until after the men had done. Before sitting down, our host apologised in his usual quiet, courteous manner for not having knives and forks; Cardozo and I ate by the aid of wooden spoons, the Indians using their fingers. The old man waited until we were all served before he himself commenced. At the end of the meal, one of the women brought us water in a painted

clay basin of Indian manufacture, and a clean coarse napkin, that we might wash our hands.

The horde of Passés of which Pedro was chieftain, was at this time reduced to a very small number of individuals. A disease had for several generations made great havoc amongst them; many, also, had entered the service of whites at Ega, and, of late years, intermarriages with whites, half-castes, and civilised Indians had been frequent. The old man bewailed the fate of his race to Cardozo with tears in his eyes. "The people of my nation," he said, "have always been good friends to the whites, but before my grandchildren are old like me the name of Passé will be forgotten." The original territory of the tribe must have been of large extent, for Passés are said to have been found by the early Portuguese colonists on the Rio Negro. Their hordes were therefore spread over a region 400 miles in length from east to west.

The Passés are always spoken of in this country as the most advanced of all the Indian nations in the Amazons region. Under what influences this tribe had become so strongly modified in mental, social, and bodily features it is hard to divine. The industrious habits, fidelity, and mildness of disposition of the Passés, their docility and, it may be added, their personal beauty, especially of the children and women, made them from the first very attractive to the Portuguese colonists. They were, consequently, enticed in great number from their villages and brought to Barra and other settlements of the whites.



The wives of governors and military officers from Europe were always eager to obtain children for domestic servants; the girls being taught to sew, cook, weave hammocks, manufacture pillow-lace, and so forth. They have been generally treated with kindness, especially by the educated families in the settlements. It is pleasant to have to record that I never heard of a deed of violence perpetrated, on the one side or the other, in the dealings between European settlers and this noble tribe of savages.

Very little is known of the original customs of the Passés. The mode of life of our host Pedro did not differ much from that of the civilised *mamelucos*; but he and his people showed a greater industry, and were more open, cheerful, and generous in their dealings than many half-castes. It is very probable that the Passés adopted from the first to some extent the manners of the whites.

Ribeiro, a Portuguese official who travelled in these regions in 1774-5, and wrote an account of his journey, relates that they buried their dead in large earthenware vessels (a custom still observed amongst other tribes on the Upper Amazons), and that, as to their marriages, the young men earned their brides by valiant deeds in war. He also states that they possessed the belief that the sun was a fixed body with the earth revolving around it. He says, moreover, that they believed in a Creator of all things; a future state of rewards and punishments, and so forth. These notions are so far in advance of the ideas of all other tribes

of Indians, and so little likely to have been conceived and perfected by a people having no written language or leisured class, that we must suppose them to have been derived by the docile Passés from some early missionary or traveller.

We started on our return to Ega at half-past four o'clock in the afternoon. Our generous entertainers loaded us with presents. There was scarcely room for us to sit in the canoe, as they had sent down ten large bundles of sugar-cane, four baskets of meal, three cedar planks, a small hamper of coffee, and two heavy bunches of bananas. After we were embarked the old lady came with a parting gift for me—a huge bowl of smoking hot banana porridge. I was to eat it on the road “to keep my stomach warm.” Both stood on the bank as we pushed off, and gave us their adieus, “Ikuána Tupána eirúm” (Go with God): a form of salutation taught by the old Jesuit missionaries.

We had a most uncomfortable passage, for Cardozo was quite tipsy, and had not attended to the loading of the boat. The cargo had been placed too far forward, and to make matters worse my heavy friend insisted on sitting astride on the top of the pile, instead of taking his place near the stern. The canoe leaked, but not, at first, alarmingly. Long before sunset, darkness began to close in under those gloomy shades, and our steersman could not avoid now and then running the boat into the thicket. The first time this happened a piece was broken off

the square prow; the second time we got squeezed between two trees.

A short time after this latter accident, being seated near the stern with my feet on the bottom of the boat, I felt rather suddenly the cold water above my ankles. A few minutes more and we should have sunk, for a seam had been opened forward under the pile of sugar-cane. Two of us began to bale, and by the most strenuous effort managed to keep afloat without throwing overboard our cargo. The Indians were obliged to paddle with extreme slowness to avoid shipping water, as the edge of our prow was nearly level with the surface; but Cardozo was now persuaded to change his seat.

The sun set, the quick twilight passed, and the moon soon after began to glimmer through the thick canopy of foliage. The prospect of being swamped in this hideous solitude was by no means pleasant, although I calculated on the chance of swimming to a tree and finding a nice snug place in the fork of some large bough wherein to pass the night. At length, after four hours' tedious progress, we suddenly emerged on the open stream where the moonlight glittered in broad sheets on the gently rippling waters. A little extra care was now required in paddling. The Indians plied their strokes with the greatest nicety; the lights of Ega (the oil lamps in the houses) soon appeared beyond the black wall of forest, and in a short time we leapt safely ashore.











